The Builder.

VOL. LXXXVI.—No. 3180. JANUARY 16, 1904.

ILLUSTRATIONS.

Stockport Town Hall:—
Third Premiated Design } ..... By Mr. H. T. Hare, F.R.I.B.A.
View and Plans }
Houses, St. Felix Schools, Southwold ..... Mr. Arnold Mitchell, F.R.I.B.A., Architect.
An Artist's Cottage ..... Mr. W. A. Pite, F.R.I.B.A., Architect.

Illustrations in Text.

St. Nicholas, Witham:—
Exterior ..... Page 48
Interior ..... Page 49
Stockport Town Hall:—
Third Premiated Design, Detail Elevation... Page 61
Student's Column:—
Figs. 15 to 26 ..... Page 62
Church of "The Translation of St. Paul":—
Two Sketches by Mr. C. A. Nicholson ..... Page 56

CONTENTS.

	PAGE
The Church of St. Nicholas, Witham	47
Notes	50
The International Society at the New Gallery	52
Country Houses	53
Additions recently made to the Victoria and Albert Museum	55
Church of "The Translation of St. Paul"	56
The Architectural Association	57
The Architectural Association Discussion Section	58
The Surveyors' Institution	59
Competitions	60
Metropolitan Asylums Board	60
Illustrations:—	
Competition Design for Stockport Town Hall	60
Mistresses' Houses: St. Felix School, Southwold	60
An Artist's Cottage	60
The Student's Column	62
Books Received	63
Correspondence:—	
Acton Town Hall Competition	63
What is a Building?	63
Delay in Completing Street Paving	63
Easter Holidays and the Building Trades	63
Water Supply of Narborough, Leicester	63
Obituary	64
General Building News	64
Stained Glass and Decoration	66
Sanitary and Engineering News	66
Foreign	66
Miscellaneous	66
To Correspondents	68
Patents	68
Meetings	69
Prices Current	69
Terms of Subscription	69
Competition, Contracts, and Public Appointments	70
Tenders	71

The Church of St. Nicholas, Witham:

THE ancient town of Witham, near the centre of Essex, on the main road between London and Colchester, near the junction of the river Guith with the Blackwater, is divided into two parts. The larger portion has by degrees gathered thickly on the margins of the old Roman road and more recent highway, whilst the smaller and older part lies half a mile to the north-west on pleasant rising ground called Chipping (or Cheping) Hill, where formerly the market and fairs were held and the chief business of the town transacted. It was here, according to the Anglo-Saxon chronicle, that a town was first built by Edward the Elder, son of Alfred the Great, in 913. The ramparts of this Saxon town, or burh, used to be well defined until the Great Eastern Railway Company drove their line right through the midst of it.

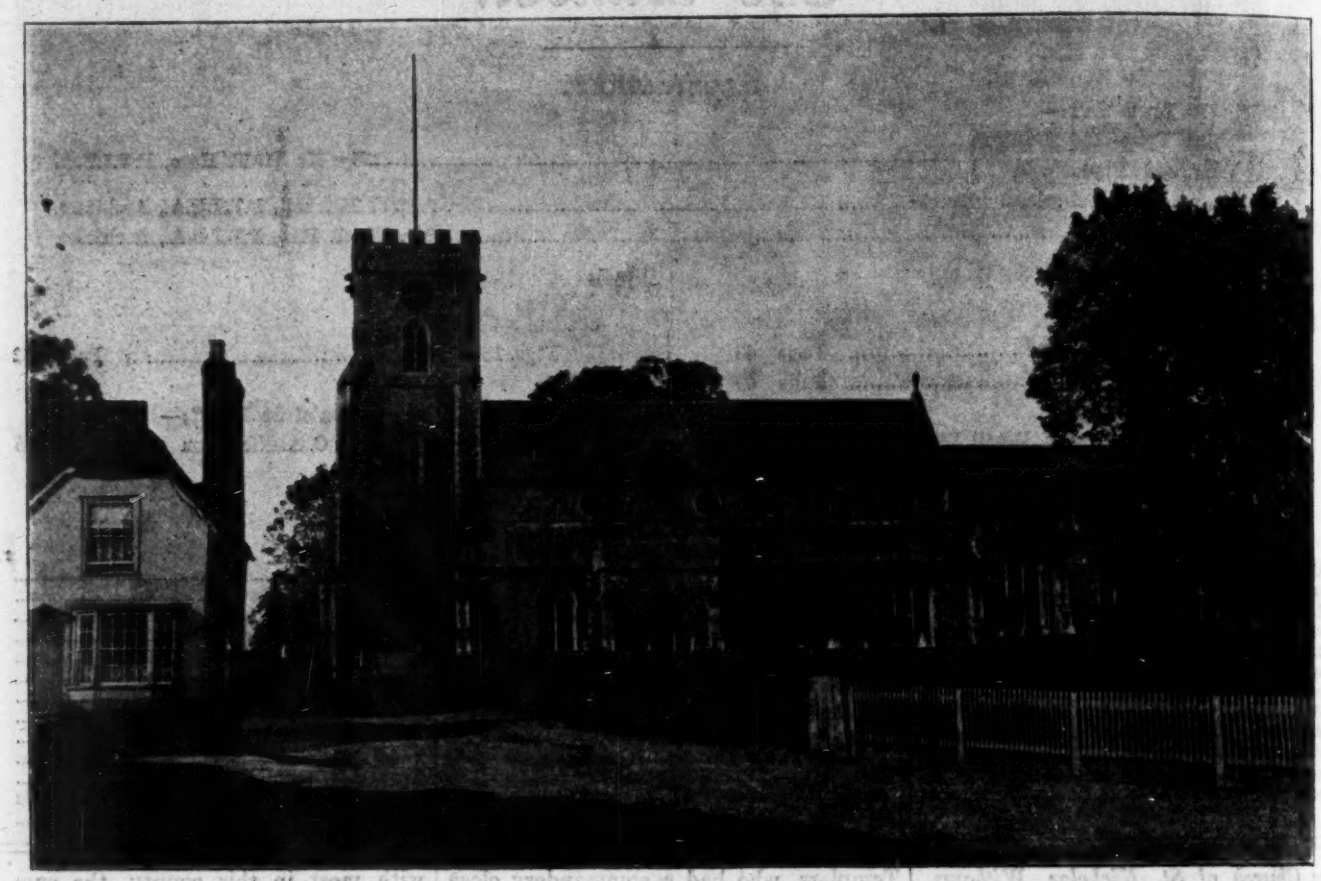
The old parish church of St. Nicholas stands near a small open green on Chipping Hill, on the right-hand side of the road that leads from Witham to Braintree. On the south side of the church there used to be considerable remains of earthworks, and much Roman brick or tile has been used in the fabric of the church, both in the nave walls and in the tower. There was certainly some small Roman settlement here, though the *Ad Ansam* of the Itineraries, which is sometimes placed here, was certainly north of Colchester.

When Stephen gave the manor and half hundred of Witham to the Knights-Templars, who had a commandery close by at Cressing, the church of Witham was exempted from the gift, as its advowson had already been granted by him to the royal collegiate church of St. Martin's-le-Grand, London. In the days of Eustace de Fauconbergh, Bishop of London from 1222 to 1228, a dispute arose as to the ecclesiastical rights of the Dean and Canons of St. Martin's over the church of Witham. It resulted in the rectory being assigned to St. Martin's, and a vicarage being formally ordained by the bishop in whose hands the patronage of the vicarage was placed. The taxation roll of 1291 shows that the rectory of Witham was then valued at 36*l.* 13s. 4d. and the vicarage at 10*l.* 13s. 4d. Although the patronage of this vicarage was left in the hands of the bishop, each vicar in the pre-Reformation days had to swear fealty to the canons, as rectors, in their own chapter-house at the time of his appointment. The dean and canons continued to hold the great tithes, and granges where they were collected, until 1502, when Henry VII. transferred the rectory to the great abbey of St. Peter, Westminster, and again in Elizabeth's reign to the bishopric of London.

A chantry was founded in this church, at the altar of St. John Baptist, in 1397, which was declared to be worth 6*l.* 14s. 10d. a year, in the time of Henry VIII. There was also another chantry in the church dedicated to the Blessed Virgin, declared to be worth 7*l.* 0s. 3d. a year. The vicarage was valued in 1535 at 22*l.* 6s. 4d.

Morant, in his "History of Essex," tells us that the top of the tower used to be of timber, but that it was raised with brickwork in the year 1743. He further says:—"This church may vie in neatness with most in this county, the sum of 314*l.* 8s. having been laid out upon it in repairs between the years 1701 and 1706 by the care and partly at the charge of Dr. Warley (the vicar), who collected 293*l.* 14s. 2d. among several gentlemen, and made up the rest himself." He also gave an organ to the church, but it was useless when Morant wrote in 1768.

The church consists of chancel, with north and south chapels and north vestry, nave with side aisles, south porch, and west tower. The earliest work now noticeable in the fabric is the south entrance, beneath the porch, and the archway from the nave into the tower, which dates from towards the close of the twelfth century, and is of the Transitional style. There are three shafts in the jambs, and the mouldings were chiefly zigzag or chevron. The archway into the tower is lofty and narrow and of massive character; though the archway is pointed, the great pilasters that bear it are semi-circular, and closely resemble genuine Norman work. These remains are sufficient to enable it to be said that a church of some size and importance, with a western tower, was erected here about the time of Richard I. We know that there was a church here at a much earlier date, and probably this Transition church was the successor to the far smaller one of the tenth century. Although there is no actual proof of a pre-Norman church at Witham, the assumption that there was one is most reasonable and probable. If the early town of Witham, built under the immediate direction of Edward the Elder, was of sufficient importance to interest the royalty of the day, and to obtain mention among the rare entries of the Anglo-



St. Nicholas, Witham. Exterior.

Saxon chronicle, it is but fair to assume that a church for Christian worship would be erected for the use of the new fort and town. The exact entry, under the year 913, is as follows:—"Then went King Edward with some of his force to Maldon, in Essex, and there encamped, while the burh at Witham was being wrought and built." Is it not obvious from this—especially as we know that the burh of Maldon was not established or built until 920—that the King was merely tarrying at Maldon in 913 under canvas or in temporary shelters until the works at Witham were sufficiently advanced for him to take up his residence and move his troops there? And that being the case, is it not almost a certainty that a Christian place of worship, however humble, would at that time, or soon after, be founded?

About a century later, probably in the earlier part of the reign of Edward I., the church underwent a thorough reconstruction. The arcades of four arches on each side of the nave, with their columns and responds of four clustered shafts, are of this period, as well as the four western circular clearstory windows, two on the north and two on the south; the four eastern square-headed clearstory windows, of two lights with cinquefoil heads, are of the fifteenth century.

On the north side of the chancel is an interesting mediæval vestry, which should be compared with the one in a like situation in the church of the not far distant town of Braintree. This vestry has had two stories, but the floor of the upper one has gone. The stone newel staircase to the upper room is still extant in a small turret at the north-west angle. There are three square-headed, widely-splayed windows in the upper walls. In the sill of the east window of the basement there have been built in a few old encaustic tiles found in the restoration of 1877. The most interesting feature about this vestry is the doorway out of the chancel. In the hollow of the moulding (on the chancel side) are small well-cut flowers, alternately square and round. The date of this vestry, though altered afterwards, seems to be of the time of Edward I., though possibly a little later. Most likely it came somewhat after the building of the present nave arcades, for the chancel would be in the hands of the canons of St. Martin's for repair or rebuilding, and would not necessarily be rebuilt at quite the same period.

The walls of the church are for the most part of pebbles and flints, with stone quoins, and having a liberal intermixture of Roman tiles and mediæval bricks in the north wall of the nave. But the structure of the vestry is different; the walls in this case are formed of irregular-shaped stones of varying size. Most of these stones have obviously been used in some previous building; there are no traces on them of Norman axeing, and it is at least possible that we have here some of the materials of the first pre-Norman church.

The south porch of the nave is a fairly good example of work towards the end of the fourteenth century, probably of the reign of Richard II. There are two large traceried windows, not glazed; the tracery has been renewed, but on the old lines. The roof is flat, and there is an embattled parapet and two large gargoyles. Over the inner doorway is inscribed, "Samuel Cardel, Churchwarden, 1700," which probably gives the date of a roof renewal.

There is a blocked-up north doorway into the north aisle, just opposite the south entrance; it appears to be of the same date as the south porch.

The western tower stands well, and is of three stages. The walls are a composition of pebble and brick. There is a new turret for stairs up to the first stage in the north-east angle; large angle buttresses reach up to the second stage; the west doorway is of the same date as the south porch and north doorway of the nave, with a two-light late decorated window above; the second stage has trefoil-headed single lights; the third stage has two-light bell-chamber windows that harmonise with the rest, and the top is embattled.

The church underwent very considerable restoration in the year 1877, when about 2000*l.* was expended. A large proportion of this money was spent on the tower, when the uppermost stage (built of brick in 1743) was entirely renewed. Two of the bells were at the same time recast, and the galleries removed and much reseating done in the body of the church.

Most of the present windows of the body of the church have been renewed, and follow the style of the latter half of the fifteenth century, except the window in the east bay of the south aisle, the casing of which is of fifteenth century date.

On the south side of the chancel is a two-arched arcade into the south chapel. This arcade and the arch out of the south aisle, together with the windows and the small south doorway, are of late fifteenth or quite early sixteenth century date. This building probably corresponds to the founding or refounding of the gild or chantry of the Blessed Virgin, for this was the Lady Chapel. On the north side of the chancel, to the west of the vestry, is a wide Tudor arch opening into a chapel now used as the organ chamber. The altar of St. John Baptist was on this side of the church.

St. Nicholas, Witham. Interior.

The upper doorway on to the rood loft (fifteenth century work) is on the north side of the chancel archway. Below it is another doorway, now blocked up, which looks at first (though of an unusual width for such a purpose) as if it must have served as the lower doorway to the rood stairs. But on going round into the north chapel it becomes manifest that the true lower doorway to the stairs is on that side; the larger opening on the nave side was probably a disused comparatively modern contrivance for reaching the pulpit.

On the south side of the altar in the chancel is a shallow, square-headed piscina niche with stone credence shelf; on the north side is another trefoil-headed niche. In the Lady Chapel is a good late piscina niche with a cinquefoil head; it still retains a wooden credence shelf, an unusual occurrence.

As to the woodwork of the church, the lean-to roofs of the aisles, with tie-beams, are worth noticing, as much of the timber and construction are old. But the exceptional feature of the woodwork of the church is a pair of low wooden sedilia of substantial make and of late thirteenth century date. They stand within the altar rails on the south side, and this, we believe, is their approximately right place, though originally they were combined with other woodwork or wainscotting. "Murray" has been called to account by some for terming these seats "sedilia," as it has been supposed by others that they are only parts of a series of choir stalls, and that wooden sedilia for officiants at Mass were unknown: The use of obviously wooden sedilia, very much after the fashion of those at Witham on the south side of the altar, has recently been clearly shown in the old sixteenth century Flemish plates to the "Booklet of the Mass," which has just been issued to the members of the Alcuin Society.

Under the chancel arch is a good fifteenth century rood screen, with three openings on each side of the doorway. The style is somewhat unusual, and corresponds to that at Worstead and one or two other Norfolk screens; each opening has an ogee curved arch of cusped tracery some little way below the enriched head. The wood canopy work on the west side of the screen is a recent renewal.

The door in the doorway into the north vestry out of the chancel is original; the central closing-ring is a good piece of iron work. The doors of the south entrance of the nave have some fifteenth century tracery carving about them: The small door into the Lady Chapel bears on the outside, "1632, George Ormond."

In the vestry is an old chest with three handsome locks; the woodwork is uncarved, but it is probably of fourteenth century date. On a shelf in the vestry are four funeral helmets, two with spikes for carrying crests; they seem all to be of the sixteenth or possibly early seventeenth century.

As to the monuments of the church, there is one that is of older date than any part of the extant fabric. This is a slightly coped coffin slab with cross patée at the head; it has been sculptured throughout, but is much worn; it is of early twelfth century date, and now stands at the east end of the north aisle.

In the north chapel behind the organ is a fine monument of its class to John Southcotte and his wife. This John, who became a distinguished lawyer, was a younger son of a Devonshire family; he purchased the manor of Little Witham, *alias* Powers Hall, in this parish. He was created a Serjeant in 1558 and one of the Justices of the Queen's Bench in 1562. The monument consists of a table tomb, on which rest the two stiffly-arranged recumbent effigies. The judge—a valuable example of the exact judicial costume of the day—wears his official fur-lined gown and circular tippet; round the neck is a ruff of modest dimensions, and on the head a round flat Tudor cap, of much the same pattern as that now used by a Cambridge LL.D. The effigy of his wife, Elizabeth, daughter and heiress of William Robins, of London, is arrayed in a close-fitting gown or dress, and over it a loose robe with open sleeves; at the neck and wrists are small ruffs, and the hair is brushed back and surmounted by a flat pointed cap. Both figures have their hands joined in prayer, and their heads resting on cushions with embroidered borders. The south side of the tomb, the only one exposed, is divided into two panels bearing a quartered shield of Southcotte, and the like quarterings impaling Robins. There is another shield of Robins at the east end. The cornice moulding is exceptionally bold. On the jamb of the window above

the tomb is a good architectural tablet, with the Southcotte arms surmounted by helm and crest, and surrounded with well-designed mantlings. The inscription tells of the death of the judge in 1585, aged seventy-four. By his wife he had thirteen children, only three of whom survived him. Sir Edward Southcotte, the fourth in descent from the judge, sold the Witham property to Sir Nicholas Garrard. The two effigies are in fairly good preservation, save that the noses of both have been broken; the faces were evidently intended for portraits.

Over the doorway into the vestry, on the south side of the chancel, is an interesting monument of the important family of Nevill. It is to the memory of Mary Nevill, only daughter and heiress of Sir Thomas Nevill, of Holt, co. Leicester, by Clara, daughter and co-heiress of Ralph Nevill, of Thornton Brigg, Yorks., and to her second husband, Francis Hervey. It is set forth on the monument that she was first married to Thomas Smeethe (a curious variant in the spelling of Smith or Smyth), second son of Sir John Smeethe, Baron of the Exchequer, who died in 1564, and was buried at Cressing; by him she had five children. She was married secondly to Francis Hervey, a son of John Hervey, of Ickworth, Suffolk. The inscription describes her second husband as one of the honourable band of gentlemen pensioners to Queen Elizabeth, and states that he kept house, in worshipful estate and credit, for twenty-seven years at Cressing. The lady died in 1592 and Francis Hervey in 1593. In the centre of this mural monument, supported by an ornamental corbel and panelled pedestal, are the kneeling figures of Francis and his wife, facing each other, with a double prayer-desk between them. The esquire is in late plate armour, with bare head and short beard; the lady is in a loose flowing robe or gown, with flat cap and hair drawn back. On the desk are the quartered impaled arms of the two distinguished families; above it is the long inscription. The figures are flanked by two panelled pilasters supporting a handsome entablature, with pyramidal terminals over each pilaster, and the marble achievement in a medallion in the centre. The whole, though too high up for close observation (it has probably been moved), is a characteristic and good example of small mural monuments of this kind, which might perhaps with advantage be revived.

On the chancel floor, near the entrance to the vestry, is a large stone showing the matrices whence a series of brasses of apparently fifteenth century date have been wrenched; they included figures of knight and lady, two groups of children, four shields of arms, and inscriptions.

Another marble mural monument quite worth noting for the exceptional purity and grace of the lettering is to the memory of the Rev. George Lisle, Rector of Rivenhall (1687), and Anne, his wife (1696); above the tablet are the arms (three double-headed eagles displayed), well arranged after an effective late Renaissance method.

On the floor of the chancel is a nearly obliterated inscription to John Lindsell, Bishop of Colchester; he was the second suffragan Bishop of Colchester appointed under the Act of 26 Henry VIII., c. 14. He was instituted to the vicarage of Witham in 1528. There are also memorials to two Archdeacons of Colchester, who were also vicars of this parish—Jonas Warley, D.D., who died in 1722, and Joseph Jefferson, who died in 1821.

Just within the chancel arch, on the south side, is a nineteenth century mural monument of white marble, which should not be overlooked; it has some merit of its own, but is chiefly remarkable for the pathetic romance attached to the death of the two whom it commemorates. Those who know the beautiful Lac de Gauve, high up in the Pyrenees above Cauteret, will remember the monument surrounded with iron railings standing on a rocky little peninsula that juts out into the waters at the foot of the lake near to the pathway by which it is reached. Here on Witham chancel wall is repeated the sad story there also recorded. William Henry Pattison (of Witham), aged thirty-one, and his wife Sarah Frances, aged twenty-six, were married on August 22, 1832, and were drowned in the Pyrenean lake on September 20. They were brought back home for burial. A medallion in bas-relief on the monument represents with some accuracy the outlines of the mountains and the lake, and shows an angel carrying the two souls to Heaven.

The church, which finds accommodation for about 600 worshippers, is well seated with modern oak, and has some fairly good oak stalls in the choir and a well-carved pulpit. The octagon font is modern.

NOTES:

Exploration in Asia Minor.

THE idea of a new impulse being given to archæological research in Asia Minor, which was the subject of a paper by Professor Ramsay, read at the Hellenic Society this week, is one which must be of the greatest interest and promise to all students of architectural history. The exploration of that great tract of country, which may yet reveal we know not what of remains of early forms of classic architecture, has hitherto been but partial and intermittent, as far, at all events, as this country is concerned. Professor Ramsay said that in urging a renewal of English interest in Asia Minor he did not mean to advocate rivalry, but rather co-operation, with the explorers of other countries. He suggested the establishment of a summer school of exploration in Asia Minor, and the establishment of centres for reference and information in some of the powerful cities. The English Government, of course, will furnish no funds for such work, but we hope the scheme may be carried out notwithstanding.

The Fall of a Viaduct.

As the result of a Board of Trade inquiry following the collapse of a viaduct on the Great Western Railway in November last, the opinion is formed that the failure was chiefly brought about by the use of a steam crane on the arch which first gave way, and which, it is now stated, was not sufficiently backed up in the haunches. The other contributing cause is said to be found in the fact that the mortar was not sufficiently set. We may here explain that the crane was only used upon the arch while the centring was being lowered, and that during the raising of materials it was placed over the adjoining pier. It may possibly be the case that the separation of the rings was brought about chiefly by the working of the crane, but we still believe that the condition of the mortar was a most important factor. The crane had previously been used on nine other arches for removing the ribs, of which fifty-four were lifted out without mishap. Consequently we may fairly argue that if the mortar in the tenth arch had been sufficiently set, there would have been no collapse, in spite of the crane. Taking this view, the obvious moral is that if people insist upon using lime mortar for bridge building, they must give it adequate time to set, even at the risk of delaying operations in wet weather. Accepting the conclusion stated in the report, we have the equally useful moral, never to use steam cranes, or to place heavy loads of any kind, on recently-built arches. Whichever way we look at the matter, we see reason for the greatest caution in dealing with newly-built arches, especially when lime mortar is used.

Ancient Lights.

THE subject of ancient light, or, more correctly, the easement of light, has suddenly found itself discussed in the *Times*. Some owner of a servient tenement, who found himself inconvenienced by the existing law, gave vent to his feelings in our contemporary; he has found some supporters and also some adversaries. The correspondence, however, is not likely to have any practical results. That the existing law does in many instances work unreasonably cannot be doubted, and the only remedy for such unfairness is that which has been consistently advocated in these columns, that the courts should in all cases award damages where the easement of light has been infringed, in place of an injunction. At the present time the owner of a dominant tenement can prevent the owner of the servient tenement from building unless he pays him any price for the right so to do. He places a pistol at his head in the shape of an injunction, and says in effect, "No building or my price." If, however, the courts of law awarded damages based on the actual diminution in value or convenience of darkened buildings, then only a reasonable sum would have to be paid. The diminishing of the light of a building to a degree to lessen it in value, but still to leave it useful for purposes of business or habitation, is a different thing from darkening it so as to make the whole building useless or unhealthy, in which case the question of municipal regulations necessarily comes into play.

Tramways and Street Traffic.

THE evidence of Mr. Sellon before the Royal Commission on London traffic contained much food for thought, even if exception be taken to his view of the question as a whole. Mr. Sellon, who is the late chief engineer to the British Electric Traction Company Limited, is naturally a strong advocate for tramways and especially for electric tramways. Comparing horsed tramways with omnibuses, he estimated considerable advantages in

favour of the former, both in saving horses and in cheapness of running; and electric tramways, he asserted, could cope with 50 per cent. more traffic than that now existing without any increase in the number of vehicles using the road. That tramways can carry a larger number of passengers more cheaply and expeditiously we are not prepared to dispute; but in an old city like London, where the thoroughfares are narrow and not constructed with a view to such traffic, tramways dislocate the general traffic far more than other kinds of vehicles. Wide streets are a necessity where tramways are to be used, and wide streets in the congested areas of London are an impossibility. That portion of Mr. Sellon's evidence which was directed to show how private enterprise and improvement in tramway systems have been hindered by the powers granted to the local authorities is well worthy of attention. A more concrete example of the pernicious influence to be expected from municipal interference and competition it would be hard to cite. The fact that private lines are subjected to the possibility of compulsory purchase at the end of short periods is a clog on enterprise which, if it had existed in the early forties, would have deprived us of our railway system.

Motor-Car Speeds.

THE warning given by Lord Lindley to motorists in his charge to the grand jury at the Norfolk Quarter Sessions comes at an opportune time. The former Master of the Rolls pointed out that the Act was not intended to legitimise a speed of twenty miles an hour in all circumstances, but that the speed was really governed by the important provisions against reckless and negligent driving to the danger of the public. Now, it is common knowledge that many motorists are disposing of the cars they have hitherto used because they are incapable of attaining a speed of twenty miles up hill, and are purchasing cars with a greater horse-power to attain that speed up hill. They maintain that they have a grievance in this under the new Act, because they have hitherto made an average by going at greater speed on the level after hill climbing at a low speed, and assert their intention of now maintaining an average of twenty miles. The remarks of Lord Lindley may save these rash spirits from incurring much unnecessary expense. In this connection we may also call attention to some interesting experiments made with the new numbers, which have been proved to be illegible at speeds of thirty miles an hour. We assume that driving at such a speed as to render the number indecipherable would also in itself be an offence against the Act.

Marylebone Electric Lighting.

THE opponents of municipal trading have for the last year been holding up the electric lighting deadlock in Marylebone as a sample of what can happen when municipalities engage in undertakings for the "welfare" of the ratepayers. Yet when the facts come to be examined it will be found that the Borough Council are not so incompetent as their opponents would have us believe; and the record of the Metropolitan Company from the consumer's point of view cannot be described as good. It will be remembered that the Borough Council agreed to purchase the Marylebone portion of the Supply Company's undertaking, and in this they had the consent of Parliament. The value of the undertaking down to December 31, 1901, having been referred to arbitration, was fixed at 1,212,000*l*. It was only when the Borough Council applied to the London County Council for a loan of 1,274,000*l*. that trouble arose. This application was rejected on highly technical grounds, and the Board of Trade upheld this decision. Mr. Justice Buckley was justified in saying that the Borough Council ought to have thought of all this before they came under statutory liability to purchase. We think that to a reasonable extent they did. What they did not foresee was the wholesale depreciation of municipal stocks, making it practically impossible for them to borrow at much less than four per cent. In order to borrow they must have the sanction of Parliament and the consent of the ratepayers. Judying by the circular issued by the Ratepayers' Committee, it seems possible that they may not get this consent at the meeting convened for the 19th inst. The ratepayers, however, will be very ill-advised if they refuse to consent to the Council's present Bill, and at the same time will not take into consideration the offer of terms made by the company. This offer seems to us to be very disadvantageous to the ratepayers. It virtually amounts to asking them to pay 12,300*l*. a year for twenty-six years in order to get them out of the bargain. We think that most consumers would prefer the municipality to take up the supply.

All Hallows, Lombard-street.

FROM a paragraph in the *Times* of the 9th inst. we learn that Canon Pereira has been presented to the rectory of All Hallows, Lombard-street, with a provision, the motive of which we do not quite understand, that the endowment connected with the church is to be used as a stipend for the Bishop of Croydon, "and so for the promotion of church organisation in the diocese." The presumption is that All Hallows will remain *in statu quo*, and that the new rector is able to be independent of the endowment. We notice the matter mainly to comment on the remarkable terms of the paragraph, in which, referring to the fact that the church had been condemned to be demolished, it is sneeringly observed that "the antiquaries and others succeeded in beating up a sufficient number of the ratepayers to defeat the scheme," and that the ecclesiastical authorities, in parting with the endowment, "have at least shown less selfishness than the majority of the All Hallows vestry." So that it appears that, in the eyes of the *Times*, or of the person who wrote the paragraph (which has all the appearance of being a partisan statement), the joint action of a number of "antiquaries and others" to prevent a fine church of Wren's from being destroyed is only regarded as "selfishness"! It is an idea only too characteristic of the spirit of English newspapers in these matters.

Royal Academy Lectures.

AT the first of Professor Clausen's six lectures to the Royal Academy students on Painting, on Monday last (when there was a large attendance of visitors as well as students), he lectured on "Some Early Painters," more especially Fra Angelico and Masaccio. He commenced his lecture with some general remarks on the state of painting in the present day in comparison with the early Renaissance period—the want of definite aims, owing in part to the almost bewildering amount of our present knowledge of all schools of painting, and the much larger field over which the history and criticism of painting had to range compared with the days of Reynolds's lectures, when hardly anything was known or thought about the primitive Italian painters; incidentally observing that William Blake might be said to have been the first pre-Raphaelite, as he first expressed an admiration for the directness of aim and careful execution of the early painters. Professor Clausen also referred to the great care and finish of execution of the early painters, not merely in isolated instances, but as a practice pervading all their works, a quality of which there was but little to be seen in modern painting. Exhibiting on the screen some examples of Fra Angelico, he drew attention to their childlike simplicity and directness of expression and composition, and their idealised representation of events, as if they represented a vision in the painter's mind of the event, rather than an attempt to realise it in a materialistic sense. The original pictures showed a great deal of beauty of colour and a remarkable clearness of effect resulting from the ignoring of shadow—"when painters begin to see shadows, then their troubles begin." Masaccio's works represented the earliest examples of realistic painting and the power of drawing the figure in perspective in a three-quarter view, instead of the simple side or front view usually shown by Angelico. Some illustrations of Masaccio showed forcibly the gulf which separates him in this respect from Angelico; the figures of Adam and Eve in "The Expulsion" were as well drawn as they could draw them in the Life school to-day. Masaccio's paintings in the chapel of the Carmine must have been drawn without any models before him, for there was no space or light for models: they must have been studied and rehearsed beforehand and then drawn from memory. That was a useful lesson for modern students, who should try to acquire the power, not only of drawing what they saw before them, but of carrying it further in the memory. The remaining lectures, on the succeeding Mondays and Thursdays (the second of which will have been delivered before this issue is published), are on "Lighting and Arrangement," "Colour," "Titian, Rembrandt, and Velasquez," "Open-air Painting and Landscape," and "Realism and Impressionism."

Mr. Garstin's Drawings.

AT the Fine Art Society's Gallery is a collection of water-colour drawings by Mr. Norman Garstin, "In Border Lands," illustrating scenes in Normandy, Brittany, and Holland. Mr. Garstin has a style of his own in water-colour, and there is a

great deal of feeling for both colour and composition in his drawings; they are artistic work, and not mere topography; but where architecture predominates in the subject the rather soft and woolly texture of his work is not satisfying to the architectural eye, and the buildings are rather carelessly treated in detail. For instance, "At the Foot of the Garden, Caudebec" (35), which as a whole is a work of very good pictorial quality, the careless drawing of the cathedral in the middle distance is a weak point in the picture. Those which are purely landscapes are the best. "A Green Alley by the Seine" (23), full of sunlight; "La Bouille, on the Seine" (29); "Evening by the Vire, St. Lo" (36), with the house beneath a dark mass of trees and reflected in the stream; "A Reach of the Rance" (43), a very small and charming little upright landscape; "Summer Evening, Holland" (49), with the long row of tree-trunks reflected in the water; "A Bend of the Seine" (64); "A Water Gate by the Ellé" (76); and "A Home Upon the Waters, Holland" (80), with the large heavy barge and its immense rudder, in yellow light, in the centre of the picture. There are two little experiments in working pictures by stencil, of which "Greeting" (92), a kind of New Year's card. is very successful.

Old Glass Colour Prints.

AT the Leicester Galleries there is on view (and on sale) a collection of curiosities, the property of one owner; a number of colour prints on glass; an old fashion of work which has long since died out, and which, to judge from this collection, the world can very well spare. They are apparently produced by a process of taking off the colour of a print on to the back of the glass, so that it shows in front as a colour print, with a glazed surface. There appears to be an attempt to get up a fashion for collecting these, which may, like other fashions, have its day; but they are worth nothing in an artistic sense. As an illustration of the taste of some of our ancestors they have, however, a certain archæological interest.

The late M. Gérôme.

THE death of M. Gérôme removes from the world a great and most typically French artist—French in his class of subjects, in his feeling, and in his conscientious execution and thorough knowledge of his craft; the latter, perhaps, a characteristic more of the past than the present generation. Owing to a certain apparent lack of poetic feeling—and, it must be admitted, that tendency towards the choice of cruel or unpleasant subjects which seems a besetting sin of French artists who have Orientalised themselves—his works cannot be said ever to have appealed to what is highest and best in human nature. But his art is of great intellectual interest for its power and mastery, and he was a fine and chivalrous character, beloved by his pupils and followers in spite of his relentless criticism. It has been said that "pas mal" was the most enthusiastic approval that anyone in his atelier ever obtained from him; and possibly it was the highest praise that he passed on his own productions. Some further notice of his life and work will be found under the head of "Obituary" on another page.

Literary Criticism on Art.

MR. EDMUND GOSSE'S speech in proposing the health of M. Rodin, at the dinner given to the eminent sculptor, affords an amusing example of the truth of a remark made to us by an English sculptor the other day, that M. Rodin had been exalted into his present position "by a group of hysterical literary men." Mr. Gosse remarked that "we used to think of sculpture as an art in dignified repose; but we turned to M. Rodin and saw torture and ecstasy, languishment and terror—all the primal passions of our race—quivering on the surface which enveloped the vehement creation of his dreams." And then Mr. Gosse groups M. Rodin, by implication, with Pheidias, the most reposeful sculptor that ever worked. "With astonishment and joy we saw him labouring in the refulgence of the uncreated image, while his soul was visibly torn with agony until he could bring his vision to birth." At this rate, M. Rodin at work must, indeed, be a remarkable sight. This journal was one of the very few which recognised M. Rodin's gifts many years ago, when he was almost unknown in this country; but hysterics of the kind in which Mr. Gosse indulges can only serve to make both literature and art ridiculous in the eyes of sane-minded people. We may add that it is not many years since the same discerning critic wrote an almost equally excitable magazine article in praise of a producer of Bible pictures in clay, whom Mr. Gosse (then) maintained to be the greatest sculptor of the day. Now the mantle has descended on M. Rodin.

Institute Prizes Competition.

THE list of works received in competition for the various prizes and medals given by the Institute of Architects is just published, with a list of the mottoes under which works were submitted, and it looks as if this year's competition would be a good one. We are glad to see that the Essay Prize, on the attractive subject "The Delineation of Architecture," has attracted eight competitors—a much larger number than usual. There are twelve competitors for the Silver Medal and ten guineas for measured drawings of ancient buildings; fourteen for the Soane Medallion, "A University Theatre on an Open Site"; and eleven for the Tite Prize, "Design (according to the principles of Palladio, Vignola, Wren, or Chambers) for a Crescent in a Large City." Both these are very attractive subjects, and we hope will have produced some fine designs; but surely the wording of the Tite subject is rather inaccurate in the use of the word "principles"; it should have been "according to the practice" of one or other of the different architects mentioned. Their principles were much the same; their practice in the treatment of the Order differed; but that is not a sufficiently large and vital difference to define as a principle. The Grissell Medal, also an attractive subject—"Design for a Timber Spire or Lantern Termination to a Tower"—has attracted fourteen competitors, which we are very glad to see, as this useful prize for practical construction has been rather neglected. The other prizes are: The Arthur Cates Prize, four competitors; the Owen Jones Studentship, applications and drawings from five competitors (Messrs. W. Davidson, L. R. Guthrie, James M'Lachlan, F. Lishman, and H. Morley); the Godwin Bursary, two applications, from Mr. H. Phillips Fletcher and Mr. F. R. Hiorns; and the Pugin Studentship, three sets of drawings, from Messrs. A. E. Bullock, W. S. A. Gordon, and F. C. Mears. This usually very popular prize seems to be exercising less attraction than formerly.

The President's At Home.

THE President's smoking reception at the rooms of the Institute of Architects on Monday evening was, as far as one could judge from the appearance of the room, the most largely attended of any. At each of these receptions there has been a collection of drawings by a late eminent architect on the walls; on this occasion it was J. L. Pearson who was represented. His drawings of vaulting and other details of work in the mediæval style were very interesting, and showed how practically he had grasped the process of mediæval architecture. Yet it cannot be denied that there was about them an air of being out of date for architects of the new generation; in Wordsworth's phrase, they "speak of something that is gone."

THE INTERNATIONAL SOCIETY AT THE NEW GALLERY

ART used to be so supposed to be concerned with the production of the beautiful; at the exhibition of the so-called "International" Society of Painters, Sculptors, and Gravers at the New Gallery it seems to be largely concerned with the production of the ugly. Such pictures as M. Zuloaga's "Un Mot Piquant" (162) and "Gitane et Andalouse" (174), Mr. Ricketts's "A Burial" (179), M. Vierge's "Étude de Berger Espagnol" (200), M. Anglada's "Danse Gitane" (232), and, worst of all, M. Maurer's "The Dancer" (230) are enough to make one think the art of painting an altogether pernicious machinery for defacing canvas. M. Rafaëlli's portrait (246) of a young lady in white, which would ordinarily pass for a pretty, but not very powerful or original, picture, comes as a positive refreshment after some of the things in the same room, from the mere fact that it is not ugly. Even a painter like M. Cottet, who has produced some fine pictures, seems to have got infected with the atmosphere of the place; his "Deuil Marin" (136), meant to be pathetic, with its three hardly-painted bloodless figures looking as if they were cut out in silhouette, is almost entirely devoid of pictorial quality. He is better in the "Messe du Matin" (148), which was, we think, exhibited in the New Salon, or one on very much the same lines.

Apart from absolute and defiant ugliness, there are such a number of pictures, especially among the smaller ones, the object of which seems to be to represent a figure, an incident, or a scene in some unusual, unexpected, or unreal manner—the craze for what is supposed to be originality at all costs. Architecture, among other subjects, suffers badly in such efforts as Mr. Bauer's "Amiens Cathedral" (94), a muddy scrawl rather than an architectural drawing, and M. le Sidaner's "The Portail" (180; he seems to have mixed French and English in the title), which looks like a brush drawing of architecture on blotting paper, with all the outlines and details run into a smudge. There seems to be no presiding principle in the exhibition after all, for M. Raffaëlli's plain prose portrait, already referred to, looks as if it had no business there; and at

the top of the north gallery, in the central position, hangs M. Claude Monet's well-painted and well-balanced realistic interior scene, "Le Dejéuner" (218), representing nothing of the poetry or idealism of art, but which in its honest, unaffected style and execution is a condemnation of much of the work exhibited in the same room.

The most important department of the exhibition is the central hall, in which the sculpture is arranged. It is difficult to realise how the work of M. Rodin there grouped would really have struck one if the mind were not almost set against it by the thoughtless and over-wrought adulation at present poured out upon everything that he does, by art critics and literary enthusiasts who seem to have no power of individual judgment, but simply follow in the same rut like a flock of sheep. The colossal figure "Le Penseur" is a fine thing with a rugged vigour about it, though it does not specially suggest thought, as Michelangelo's wonderful figure does; the "Bellona" head is a remarkable conception, but the expression suggests Bellona sulky rather than vengeful and dangerous. The small bronze group "A Dream" is a pretty and poetic fancy, somewhat resembling in sculpture some of the ideas which Mr. Henry J. Stock has endeavoured to express in painting. On the other hand, we have one group (not named in the catalogue) in which two figures are twisted and contorted together so that you can hardly make out which limbs belong to which, and with that peculiar mode of execution which M. Rodin has recently adopted, as if the thing were in a half-melting state and running soft; and, to crown all, we have a bronze of a nude John the Baptist without a head. This whim of sending to an exhibition limbs and parts of figures, and headless figures, and figures carved in different fragments and then visibly skewered together (we are spared this latter amusement, at all events, in the present exhibition) is simply a piece of affectation, as if the public were to take thankfully any fragment of a figure which the great master chose to set before them—a disrespectful proceeding, in which the sculptor is encouraged by the infatuation of the critics and the public.

Among the other works in sculpture are several by M. Bartholomé, the author of the "Monument aux Morts," a far greater work than anything M. Rodin has produced, but the very existence of which is unknown to most of the English adulators of the latter. There is nothing here quite worthy of the author of the "Monument," but there is a deep pathos in the strange "Le Réveil dans la Mort," husband and wife and infant child becoming momentarily conscious of each other's affection in the tomb. His "l'Enfant Mort" is a pathetic group of fine sculptural line. M. Bartholomé's success in giving expression to the two wonderful figures with their backs to the spectator, in the doorway in the "Monument," has apparently led him to try this effect where there was less motive for it, as in his group "Le Secret," which is a little too like a joke in sculpture, and the "Petite Fontaine d'Encoignure," which, however, is a pretty fancy; a nude figure is faced inwards in a niche under the shell basin above, and the fountain water would, as it overflowed, run down her back, or else would make a watery veil before the figure. Among other pieces of sculpture in the central hall may be mentioned a capital small bronze group of "Tiger and Wild Boar" by Mr. J. H. M. Furse, and a fine life-size sketch of a head, "The Bard," by Mr. Taubman.

Among the pictures which are of any importance are Sir James Guthrie's portrait of a child (168) in the west room, a welcome contrast to some of the portraits there, and Mr. Lavery's "A Lady in Pink" (181), a brilliant and effective piece of colour. The same room contains Whistler's full-length portrait entitled "Rose et Or" (153), stated to be "unfinished," but not more manifestly so than many pictures of his which do not bear that legend; and two real pictures by the same unequal artist, "Symphony in White" (152) with two figures, a beautiful piece of delicate colour, and "Valparaiso" (154), a pearly-grey morning scene in a harbour; true, the water is not like water, but the general effect is very beautiful, and one can only wish that Whistler had always painted like this. In the north room Mr. Bertram Priestman shows, in a large landscape, "The Lock Pool" (192), an obvious intention to challenge Constable on his own ground; owing to the glass, the picture is difficult to see, but it looks a fine one, only wanting, it seems to us, a touch of high light here and there, to prevent it looking too sombre. Still, this is a serious work of high intention. Mr. Millie Dow's "Eve" (192) is not worth the title, being no more than a pretty and rather sentimental nude study. M. Claus's two studies in light and colour, "Matin" (207) and "Azaleas" (220), are real works of art, though in a somewhat far-fetched manner, and Mrs. Withers's "White House by the River" (216), a very "dirty white" house, has a certain melancholy power about it, as also Mr. Withers's "The Bridge at Moret" (159). Mr. James Paterson's "Edinburgh Castle" (247) is a really fine work, with a remarkable effect of scale and aerial tone in the painting of the ancient castle high up in the picture. In the south room are a considerable number of works in black and white, including, we are glad to see, a row of Mr. Timothy Cole's beautiful wood-engravings; charcoal drawings by Mr. Pennell; a number of etchings, colour prints, and lithographs by M. Felicien Rops, unequal in interest, but containing a good deal that is very clever, both in respect of execution and suggestion; and a casket in gold, silver, enamels, and precious stones by Mr. H. Wilson.

COUNTRY HOUSES.*

THERE is something very attractive about the country house, and its whole environment and surroundings appeal strongly to the imagination. It is always associated with peaceful, quiet days spent amidst fields and gardens, and we instinctively conjure up in our mind's eye the lichen-coloured roofs and tall grey chimneys nestling amidst a wealth of green trees and foliage, and cool old-fashioned rooms, with white panelled walls and time-worn furniture. But to-night we do not want to talk so much about old houses as to deal with the problem of country houses to-day, and if the few notes and thoughts I have put together, from my own practical experience in various parts of the country, will in any way help you in building them, I shall be gratified, for in our work we are all students, and every day learn more and realise, I hope, that we have much more to learn.

At the present time in England more country houses are being built, and more money and thought are being expended upon them, than perhaps at any time since the days of the Stuarts. Knowledge and taste preside over the building of new houses to a greater degree than any time during the last fifty years, and a school of architects has arisen that is producing work that will rank with anything in either this or any other country. But this is not universal, and though the example of these men has been, and is, very potent, yet it will be long years before the mass is leavened and the country house is a joy to look upon, and able to hold its own with its forefathers!

In dealing with country houses one of the first things to be settled is the question of site, and though in many cases this is already decided and leaves but small choice, yet the actual position of the house and garden surrounding it needs the most careful consideration on the part of the architect. It is, of course, imperative that the site should be visited and thoroughly studied, for though this may sound a ridiculous reminder, yet the lack of this is responsible for so many failures in the disposition of the house and grounds that are continually seen, showing at a glance that they have been planned regardless of their surroundings and with no relation to either the garden or aspect. If the site is a small one, of some few acres in extent, we must consider the best approach from the road, trying to avoid cutting up the ground by unnecessary drives and paths, and whether any future buildings on the adjoining property will be detrimental.

Of course no hard and fast rules can be laid down, as everything will be governed by local circumstances and diversity of conditions, but a great deal can be done by thinking over, on the ground, all the possible objections, and trying to overcome them in imagination one by one.

The aspects having been studied, we must then plan out the garden, if possible, arranging this on the south or west, and, as a general rule, getting the house on the northern side of the ground. By so doing we can plant out our boundary to the south, and so get the garden and principal rooms full of sunlight, without the ultimate fear of losing it by being built out later on.

In dealing with a larger site one has a freer hand, though here the very abundance of choice is apt to lead one astray. The whole ground having been gone over, after a time the undesirable spots will be eliminated, and one or two suitable ones remain. Here we are faced with a more difficult task, for not only must we decide the best position for the house and surrounding buildings, but also the arrangement of the gardens, distance from the main road and cost of making our drive, and the numerous other buildings in connection with a fair-sized country house.

After the site is settled—in as dry a spot as possible, and on a southern slope for choice, as in this country we can do with all the sun we get—it is a good method to stand on the spot where the house will be, and, before anything else, decide the position of the approach road, and the pleasure and kitchen gardens. These will, more or less, resolve themselves into blocks, as aspects, levels of the ground, and so on will to a large extent decide their position and arrangement.

If the stables and coachmen's quarters are to be near the house, and form part of the scheme, they should be on the northern or back part of the ground, easily approached from the drive, without, if possible, passing the house, and contiguous to the gardens, for easy carrying of manure and other requisites.

The arrangement of the garden and the environment of the house very greatly control the plan, for it seems impossible to design the house with any success without, at the same time knowing more or less definitely the scheme of the garden lay-out. For years past English gardens have suffered, in that they have been, as it were, divorced from the house, which generally has been built and completed entirely apart; hence it is that in so many we see to-day, where much care and taste have been bestowed upon them, the result is disappointing, as neither the garden nor the house have been planned to fit the other. It may be almost accepted as an axiom that garden-making should never be considered as apart from the architecture of the house, for to a great extent it should be influenced by the plan of the house, which should be, as it were, continued in the garden, and conceived in the same spirit.

If the position of the house is settled, the levels of the site will roughly show where a terrace will be made up, and where the lawns and gardens will be, and these, to a great extent, govern the planning of the various rooms overlooking them. Do not, I beg, design your house by itself, and think you can fit a garden to it afterwards, for you cannot do so, with any success—just as a good and suitable frame enhances the beauty of a picture, so a carefully thought-out garden will form a setting to your house. So much is now being done, and so keen an interest is being taken in this most delightful craft, that the laying-out of gardens and their embellishment by garden architecture, is one of the practical interests of the pleasant side of life, and it behoves us as architects to keep abreast of this movement, and to study how best we can adapt our houses and gardens to each other. At the present time flower-gardening was never so successful or so eagerly enjoyed, but the growth of flowers is not permanent, and is, consequently, less expensive than other and structural adornments, so that it is possible in a few years, and at no great expense, to change the whole character of a flower-garden. But garden architecture and the planning and disposition of gardens is both permanent and costly, and if mistakes are made the experiment is a matter of lasting regret. Much of the external beauty of new country houses and homes, which in a hundred years will be old country houses, depends on whether they are successful or not in the arrangement of their gardens and surroundings.

The individual peculiarities belonging to every site and its special points should be kept in view and emphasised in the lay-out of the garden, and any local character, in the way of fences, hedgerows, stone and brick walls, should be retained, as nothing is so inharmonious in a garden as strange or obvious importations from other districts. The closeness of touch between nature and man's work shows up to an almost painful degree every

D

* A paper read before the Liverpool Architectural Society, on January 4, by Mr. E. Guy Dawber, F.R.I.B.A.

failing in outline and detail, and serves but to enhance our admiration for the designers of the graceful examples still to be met with in old gardens. The old wrought iron and wooden gates are amongst some of the best features of garden accessories, and there are still many of these beautiful pieces of native craftsmanship left for us to admire. After all it is the homely, simple outlines and details that give us the most lasting pleasure, for anything lavish and extravagant, especially in a garden, however much it impresses by its costliness and the labour spent upon it, is apt to pall upon that very account.

In old gardens we invariably find a certain amount of architectural design bestowed upon them, in the shape of terraces, flights of steps, balustrades, and garden houses. The gardens were often inclosed with high walls—a thing people to-day seem to have a horror of—and quaint gateways, and pavilions to vary the monotony of their length.

I often think that nowadays far too much variety and charm is sacrificed for the sake of getting garden walls rigidly straight and consequently dull, merely to suit the gardeners' requirements. Where it is possible either in planning the buildings, or the arrangement of the gardens, it is good to get some portion private, shut off from the rest either by trailage and hedges, or walls, so as to avoid the effect of a garden seen all at once, and which conveys no sense of seclusion or mystery.

There is an unfortunate propensity amongst the public to select their greenhouses and conservatories out of catalogues, and all of us know the horticultural builder, who ruthlessly puts up some lean-to abomination, bad in proportion, thin and wiry in design, often spoiling the entire appearance of a well thought-out house. Most of us can call to mind the delightful old conservatories, with their small panes and spacious sashes, that all over the country have been, and are being, swept away to make room for the inartistic ones of the modern manufacturer. For purely commercial purposes such are admirable, but in a garden, or near a house if the conservatory is intended to form part of the general scheme, thought and good taste should be bestowed upon it. And when speaking of conservatories it should be remembered that the tesselated pavement of garish tiles is the worst possible background for flowers, as it detracts from their colour, and that a floor of some neutral tinted stone flags, or other material, is the most satisfactory.

I have dealt rather fully with garden work—the general lay-out and planning of the lawns, terraces, walls, steps, kitchen gardens, and so on—because this is essentially part of an architect's work, as it used to be in years gone by; and it is simply because we have, without protest, allowed the so-called landscape gardener to usurp our position in this matter that the public, as a rule, have ceased to associate the laying-out of a garden in any way with the duties of an architect.

In arranging the actual plan of a country house, a plain, straightforward, commonsense disposal of the various rooms is always in the end the most satisfactory and produces the best results, both internally and externally. If you examine the plans of any of the great masters in our profession, both in this and other countries, the obvious and studied simplicity of their planning will be patent to all. There is no attempt at eccentricity or puzzling odd features, no ill-shaped awkward rooms, full of strange angles and recesses, but rooms kept big and square with well-planned and proportioned doors and windows, all generally worked out on centre lines. Invariably, if you see a particularly pleasing and well-balanced elevation, you will find it accompanies a good and simply-arranged plan. Nowadays in some plans that we see the position of the furniture in the room, and the use it is going to be put to, seems to be the last consideration, and rooms are planned, bedrooms especially, in which it is impossible to arrange it. I know a country house where the principal bedroom has the bed standing in the middle, as there is literally no wall space not taken up by fireplace, doors, and windows. This in a modern house is quite inexcusable, and naturally brings contempt on architects!

The charm of a country house, as a rule, lies in the fact that we are not in any way governed by the cramped conditions of building in a town or city. There are no ancient lights to contend with, no narrow frontages or deep sites with blank walls, and but few restrictions and regulations to thwart our ideas. In towns house planning has to be considered from a different standpoint, and every inch of space utilised in the most economical manner; in the country a spaciousness of plan is one of the great fascinations of the house, and where we are not rigidly tied down to price, it gives an opportunity for a display of picturesqueness in the arrangement, quite as much as in the elevations. Every house must be planned to suit the requirements of its occupants, and to meet special circumstances. No two houses can ever be alike to-day any more than they were in the past, and I think it is this very diversity—of site, aspect, materials, and occupants—that gives architects such a chance and scope for their powers as seldom falls to the lot of other workers.

In designing a country house we should think it out in the "round," and recollect that it will be seen from all sides. There should be no back to it, no unsightly straggling outbuildings and offices; but all self-contained and arranged, so that from all points of view it is interesting and picturesque. A little thought will soon enable us to do this, for nothing is so unpleasant as the idea of there being a "back" to a house in the country after the manner of a town or city. Some of the most picturesque parts of old houses are the kitchens and outbuildings, and that is the reason why I am so insistent upon having the house and garden arranged at the same time, because often the most pleasing views of a house are obtained from the kitchen gardens and the domestic portions of the building. The plan again governs the roofing, and wherever a house is difficult to roof you may be sure the plan is wrong and needs reconsideration.

As a very broad rule it is well to keep the various rooms and lines of walls alike in width, so that the spans of the roof will be the same. If you get them unequal the ridges come at varying levels, and you get space in the roof too small for attics and wasteful and extravagant. So much of the beauty of a house depends on the grouping and arrangement of the roof.

As I mentioned before, the plan of a house is governed by the daily life and pursuits of the occupants. In a district, for example, where large house-parties assemble and much entertaining is done, a large hall or general sitting-room will be found more useful than the ordinary drawing-room—indeed it is almost indispensable. It is the one room where everybody gathers, where books and papers are read, tea is taken, and where all the inmates assemble both before and after meals. The old-fashioned drawing-room is to my mind almost unnecessary, as nowadays people—the younger ones especially—generally migrate to the billiard-room after dinner, and if this is made large enough to take the table at one end, and with ample space for easy-chairs around the fire at the other, it makes one of the most popular rooms of the house. This hall should be treated as a living room, with no external doors, and arranged with a fireplace, and, to be thoroughly comfortable, its importance should not be overlooked, as it gives a good impression on entering the house, and first impressions of buildings, as of people, go a long way. For a moderately large country house a hall, dining-room, billiard-room, and business-room, with a boudoir or sitting-room for the lady of the house, which can be used as a drawing-room, opening for choice out of the hall, gives really all the accommodation needed, and with well-arranged domestic quarters makes a thoroughly workable house.

Of course, circumstances govern the plan to a great extent, but, as a general rule, it is better to get few and large rooms, as I have suggested, some communicating with each other, than a series of many smaller ones. It is both useful and effective to plan some of the rooms on a central axis, with large double doors, that on occasion can be arranged to open wide when entertaining. The doors can be planned to fold in four halves or two in the thickness of the wall, which can be brought forward on either side of the door, forming recesses for china or books.

When building on a sloping site, a pleasing variety of plan may be obtained by arranging some of the rooms on a lower level than the rest; this enables them to be made higher, yet still keeping the bedroom floor over on the same level. This, if the steps down are wide and shallow, gives an opportunity for delightfully picturesque effects, as we see in so many old houses.

In a country house, so long as the plan is well and conveniently arranged, I think it may with advantage be spread out. There seems no particular reason in planning it so economically that all landing space is omitted and the doors and rooms all concentrated together. It certainly gives far greater opportunities for picturesque grouping outside, and in the country, too, one takes life more leisurely than in town, and a few yards more to walk from room to room does not mean very much after all.

Wide and spacious corridors are, again, always attractive features, and add so much to the beauty of a house. If made wide enough, some 7 ft. or 8 ft., to admit of furniture being put in them, they are most useful, besides being of practical value in forming a channel for through ventilation. There is nothing that spoils the effect of a house so much as mean and cramped passages.

It is a question if too much importance is not given to the staircase in the ordinary country house. Where parlours and reception-rooms are upstairs, as in towns, then the stairs must necessarily be treated as one of the decorative adjuncts of the house; but where, as in the country, they merely give access to sleeping apartments, I am inclined to think too much is made of them. The old turret stairs lasted for centuries, until the Elizabethan days, and even much later in remote districts, and though we do not want to revert to these times, yet a circular staircase, if wide enough, is both economical and picturesque, and as all boxes and luggage would be taken up the servants' stairs, it is perhaps all that is necessary. A staircase carried up between walls is always pleasant, and gives a sense of seclusion and privacy that the usual open one seldom does, and in winter time curtains can be drawn across the opening if it gives directly into the hall.

In quite small country houses a departure might be made if two living-rooms only were arranged—one simply for meals, kept as compact as possible, some 14 ft. by 16 ft., and the other the general room, about 16 ft. by 30 ft., or more. This would be more useful and convenient than three or four smaller rooms, as they would be more economical in working, and certainly pleasanter both in summer and winter. Of course, it is absolutely essential that this hall, or general room, both in large and small houses, should be cheerful and bright, and, if possible, with windows overlooking the garden.

One frequently sees large halls in country houses lighted from the top, with no outside windows at all, and with a staircase leading immediately from it and carried round as a gallery above, with all the bedrooms opening off it. Here all feeling of comfort and seclusion is missing, and what should be the pleasantest apartment in the whole house becomes merely a cheerless and unventilated well.

It is unnecessary for me to deal in *detail* with the arrangement of the plan, as this is a matter that every architect must settle according to the requirements of his clients; but careful economy of construction and the working of the house should always be borne in mind. Next in importance to the arrangement of the living rooms are the servants' quarters. It is a great mistake to cramp these, for on the comfort of the domestics depends the smooth working of the house. In establishments that are not large enough to have a servants' hall it is a useful plan to omit altogether the old-fashioned scullery, and to make instead two kitchens—one, the front one, arranged with a fireplace, with dresser and cupboards around it, can be used as a sitting-room for the servants, where they can take their meals, and which can always be kept neat and tidy, and is cool in summer; the other, or working kitchen, would contain the range and the sink, so that all the cooking and preparation of the food, as well as washing of plates, could be done here.

If, in addition to the larders and other offices, there is a good pantry, where the glass, china, and silver can be washed and stored without passing into the kitchens, it makes a most compact arrangement, and, if the rooms are made fairly large, is suitable for quite a moderate-sized house.

Personally, in small establishments I am much against useless passages, as they are always draughty and take up room that would be better added to the kitchens.

Do not forget to give ample store cupboards

and plenty of space for coals and wood and the lumber and boxes that always seem to accumulate in a country house.

In larger houses the whole arrangement of the servants' quarters is quite as important as any other part of the building, and they should be planned on broad and generous lines. In a house where many guests are entertained, in addition to a large servants' hall, there should be sitting-rooms for both butler and housekeeper, so that tradesmen or people who come on business connected with the house can have a meal here without going into the servants' hall. In the butler's pantry, besides the strong room, it is a convenient plan to fit up at the side of the fireplace a large cupboard with a close-fitting door, heated by hot water from the fire. The cupboard is used exclusively for warming the plates and dishes, which are brought here as soon as they are washed, and can then be kept thoroughly hot and taken out as needed, without in any way inconveniencing the cook when preparing the dinner. In addition, there should be a brushing and cleaning-room, with a large sink, and hot and cold water laid on, in which hunting and shooting things can be washed, and with a rack of hot pipes for drying and airing. Such details may appear trifling to you, but they conduce greatly to the easy working of the establishment.

In planning the bedrooms the position of the bed should always be settled, and then the other pieces of furniture arranged on the plan, as nothing is more annoying than to find it impossible to fit the pieces in afterwards. In new houses much more use should be made of fittings permanently built in recesses, etc., in the rooms, and if these are treated at the same time with the doors, etc., the decorative appearance of the room is greatly improved, and a saving of labour effected. Many architects to-day arrange these fittings throughout the entire house, so as to obviate, as much as possible, the importation of separate pieces of furniture, which only harbour dust and dirt, and are merely a survival of the Middle Ages, when one's possessions were carried from house to house in an oak or iron chest.

The additional expense when building the house is small compared with the cost of purchasing wardrobes and chests, generally selected without the least regard to the character of the rooms or the house they are intended for.

This also bears on another question. It is becoming more and more evident that the scarcity of servants is a problem, the solution of which will have to be seriously dealt with, and one that will greatly affect the future planning of houses.

In towns and cities this question is more to the fore than in the country, and has been the cause indirectly of so many people living in small flats and residential hotels, where the difficulty of obtaining servants is partially overcome. Girls that some few years ago would have gone into domestic service now flock to towns and become waitresses at cafés, or enter public offices, where their duties, though exacting and onerous for the time being, give them more leisure for recreation. It is therefore evident that the planning of houses for the future, whether for rich or poor, must be affected by this question, and, as architects, it is one that we should endeavour to solve by all possible and economical and labour-saving contrivances that can be worked out.

Of course, the whole standard of living to-day is entirely different from what it was even fifty years ago, when baths, closets, and hot and cold water circulations were quite unknown. Nowadays the smallest house is considered incomplete without a bath-room and hot and cold water laid on, and, as you know, in most of the workmen's dwellings to-day this is generally considered imperative. As the difficulty of obtaining servants becomes more severe, it is evident that baths and lavatories will be required in greater proportion, so as to be independent, as much as possible, of the assistance of servants, and in a short time a bath-room and lavatory will be considered a necessary adjunct to every bedroom, for though the initial cost may be great, yet the saving of labour is obvious, and where there is an abundant water supply and a system of hot water throughout the house there can be no objection. Many people urge that we should be better and healthier without this complexity of sanitary appliances, but that is not the view of the general public, who demand these things not as a luxury but as a necessity.

In a country house of any size it is advisable to have the hot water circulation—that is, the water that supplies the baths and sinks, etc.—heated by an independent boiler, so as to leave the kitchen range entirely free for the cooking purposes. Too much stress cannot be laid on this point, as before breakfast, when hot water is required, the range is then in use, and similarly before dinner at night, so that it is impossible to work both range and hot water satisfactorily from one fire, unless in quite a small establishment. With an independent boiler all this is obviated, and much friction avoided, and by a little management plenty of hot water can be obtained by day and also by night, which, in case of illness, is a great boon. In a small house, when an independent boiler is not possible, a Radiator fixed to the hot water circulation, on a landing or passage, regulated by a valve, adds materially to the comfort of the house, without in any way increasing the cost.

If the linen cupboard is arranged in some place near the kitchen the hot water cylinder can be placed in it, so as to insure a supply of well-aired linen, and the expansion pipe taken up into the cistern-room over. All rooms where hot water will be laid on should be arranged as near the kitchen or boiler as possible, so that the water has not too far to travel laterally from its source, which not only makes the general installation more expensive, but gives the water a greater chance of getting cool.

The position of the bath-rooms, water-closets, and housemaid's closets upstairs should be planned to come over rooms on the ground floor, where sanitary fittings will be required, so as to simplify the drainage plan, and reduce the number of unsightly ventilation pipes on the external elevations.

When speaking of sanitary matters, sufficient stress cannot be laid upon the fact that all drains, traps, pipes, and so on, need quite as much attention and periodical examination as do fireplaces and flues. It is an extraordinary thing that in the house where a grate full of ashes or the debris of many days' fire would not be tolerated for a moment the drains, gullies, and sanitary fittings are left to take care of themselves, and hardly any attention is given to them; then when a case of nuisance or stoppage arises, the whole system of modern sanitation is at once condemned as bad and dangerous to health. All rain-water gullies should be regularly cleared out and examined every month, and grease traps to sinks, etc., every week. Cisterns should be thoroughly emptied and cleaned out at least twice a year, and the hot water boilers every three months, if the water is at all inclined to fur the pipes. If such matters are attended to as a matter of course "drains" and such things would not bear the bad reputation they do now.

(To be concluded in our next issue.)

ADDITIONS RECENTLY MADE TO THE VICTORIA AND ALBERT MUSEUM COLLECTIONS.

AMONG many valuable and interesting additions to the Museum are two plaster casts from the antique. One is a cast of a kneeling youth from the original in Parian marble, found during the excavations in 1883 in a room of the villa of Nero of Subiaco. This figure was placed first in the Monastry of S. Scolastica in that town, and afterwards removed to the Museo Della Terme, Rome. Unfortunately the head, one whole arm, and one forearm of this exquisitely modelled statue are wanting. It is dated the second half of the 4th century B.C. The second is a cast from a standing figure of Apollo Della Terme, taken from the Tiber in 1891 near the Palatine Bridge, which can now be seen in the Museo Della Terme. One hand and one whole arm are gone, and the statue is considered to be a Græco-Roman copy of a work of the 5th century B.C. It is more archaic in character, and has not the grace and delicacy of modelling shown in the former example.

An interesting terra cotta group of the Virgin and Child, presented by Mr. Fitzhenry, is shown in the Italian Court. Considerable damage has been done in removing the colour, evidences of which still exist. The work is assigned to the master of the Pellegrini Chapel from Bologna, and is dated first half of the 15th century.

The small collection of pewter work has been grouped together in cases in the South Court in a more comprehensive manner than formerly. A few additions have been made. In a case near these is shown an English silver chalice and paten dated 1527-8, bearing the London hall mark. This is a charming piece, beautifully designed, curiously out of harmony with the rudeness of the engraving.

In the furniture section are three interesting examples of oak work of the first half of the 16th century A.D. They consist of two doors and a towel rail, and are particularly valuable as additions to the few specimens of such work from the Rhine valley. The two doors are similar, and have their upper panels carved in relief with floral ornament surrounding medallions (one to each panel). These medallions contained busts in relief which have been unfortunately destroyed, some showing the method of building up for high relief. A white pigment covers them. There is no evidence of gilding. The lower panels are filled with "linen fold" carving. The towel rail hung above these is of very different character, although it is marked of similar date. The carving retains its Gothic feeling, but the design is Renaissance. The carved panel over the rail consists of a monogram surrounded by rays symbolic of St. Bernardino of Sienna, supported by angels. In the pediment is a figure of the Almighty with a dove over, symbolising The Holy Spirit. The carving is vigorous, but the architectural detail has not the delicacy of the work on the two doors, and indicates a transitional development very nearly approaching pure Renaissance.

A most striking contribution by Mr. J. H. Fitzhenry is a set of six French encaustic tiles, evidently pavement tiles, of quaint designs of animals, figures, and shields, in black, red, and white. Five are dated 14th century, and one is dated 16th century. Also a panel of five French faience tiles, dated 14th century, from St. Julien de Brioude (Haute Loire), enamelled surface, pale green ground and white ornament outlined in black. The designs are Gothic foliage in quatrefoil enclosing shields of arms.

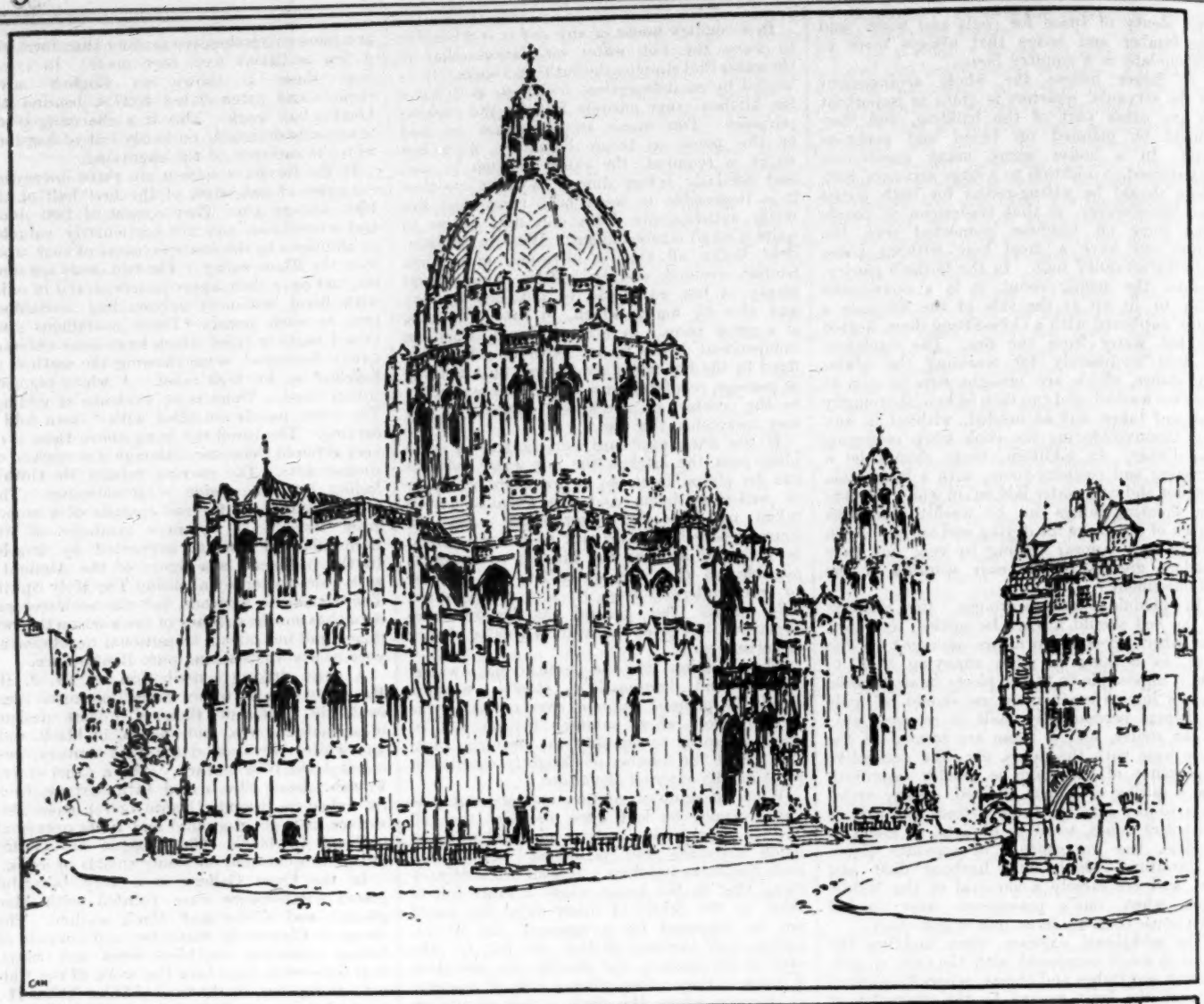
In the Cross Gallery is a very beautiful glazed earthenware vase painted with blue ground and white and black outline. The design is Chinese in character, and consists of foliage encircling mythical lions and birds. It is believed to have been the work of the Chinese at Ispahan in the time of Shaw Abbas II., in the latter part of the 16th or the early part of the 17th centuries. Mr. Chas. Marling, the British Agent at Sofia, is the donor.

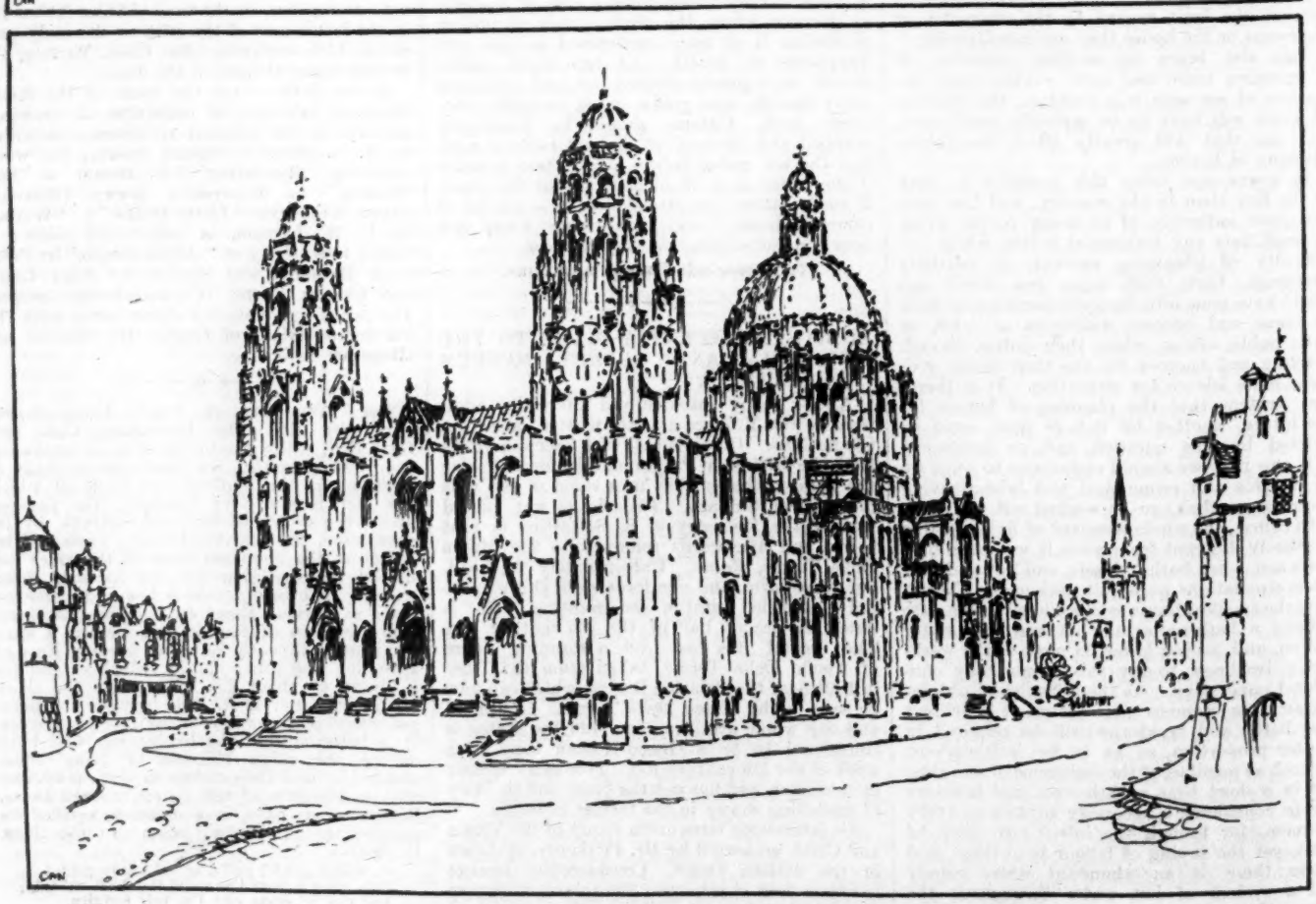
In the gallery over the south of the South Court is exhibited a collection of drawings acquired for the National Art Library, including Sir J. E. Millais's original drawing for wood engraving illustrating "A Dream of Fair Women," in Tennyson's poems (Moxon); James Mahoney's "Little Dorrit"; "Waits," by F. W. Lawson, in pencil and chalk; a strong wash study of "Alfred Jingle," by Frederick Barnard; and studies by John Leech and Charles Keene, of characteristic power. The pencil figure studies shown along with the ink reproductions of George Du Maurier are altogether satisfying.

THE "AULD BRIG OF AYR."—A report prepared by Mr. John Eaglesham, C.E., sets forth that, whilst the bridge is in an untoward condition generally, the most serious decay is apparent in the southernmost arch, of which the pier is also very insecure; the parapet above the crown of the arch betrays, by its subsidence, the continued injury sustained by reason of the increased scour of the river set up by the dredging of the harbour down stream. The bridge, which has undergone repairs at various times during the past forty years, consists of four arches, having a span of about 54 ft. each, but with varying lines of springing and other details, which extend for a length of about 260 ft. between the shore abutments; it is 12 ft. wide between the parapet walls, and now serves for foot passengers. It is believed that the bridge was first built during the reign (1214-49) of King Alexander II., and its erection is due, traditionally, to the care of two sisters, named Lowe. Recent events have, in a measure, verified its apostrophe in Burns' poem to the New Bridge:—

> Conceited gowk! puff'd up w' windy pride!
> This mony a year I've stood the flood an' tide;
> And tho' w' crazy eild I'm fair forfairn,
> I'll be a brig when ye're a shapeless cairn!

For in 1877 the New Bridge, built in 1787-8 by Robert Adam, suffered such damage from an increased flood of the river that it was in imminent ruin, and its reconstruction became necessary.





Church of "The Translation of St. Paul." Two Sketches by Mr. C. A. Nicholson.

CHURCH OF THE "TRANSLATION OF ST. PAUL."

THESE two slight but clever sketches of St. Paul's transformed into a Gothic building were sent to us by Mr. C. A. Nicholson, as a pendant to the translation of Peterborough Front into a classic design, which appeared in our issue of January 2.

THE ARCHITECTURAL ASSOCIATION.

AN ordinary fortnightly meeting of the Architectural Association was held on Friday evening last week, in the Meeting Room of the Royal Institute of British Architects, Mr. H. T. Hare, President, occupying the chair. The minutes and some nominations having been read, the following gentlemen were elected as members: Messrs. Francis Goldsbrough, W. A. Whiddington, and H. P. L. Cart.

New Premises Fund.

The President announced the following further donations to the New Premises Fund: Messrs. G. Alan Peache, 5*l.* 5s.; L. Sargant, 2*l.*; and W. M. Fawcett, 1*l.* 1s. A hearty vote of thanks was passed to the donors.

Deceased Members.

The President said he had to propose a vote of condolence to the relatives of the late Mr. Wm. Pain, who was liquidator of the Royal Architectural Museum, and was winding up the affairs of that body on the taking over of the Museum by the Association. Mr. Pain's decease at such a period was most unfortunate, and it would be necessary to appoint a successor to fill his place and complete the business. Mr. Pain was a very old member of the Association, and they would condole with the relatives in the loss they have sustained.

The President also proposed a vote of condolence with the relatives of Mr. Howard Dru-Drury, who was accidentally killed a few days ago, as announced in the last issue of the *Builder*.

Both motions having been agreed to,

Mr. Louis Ambler, hon. secretary, announced the donation of two prints from the *Builder*, dated 1857, illustrating the Royal Architectural Museum, and presented by Mr. W. A. Pite, to whom he proposed a hearty vote of thanks. This having been agreed to, a vote of thanks was accorded to Mr. W. G. B. Lewis for kindly presenting to the office the P.O. Directory for 1904.

Mr. Ambler announced that the following classes were about to commence: January 13, "Ornament and Colour Decoration," Mr. Cole A. Adams lecturer; January 14, "Greek and Roman Architecture," Mr. Hugh Stannus lecturer.

Egyptian Architecture.

Mr. Hugh Stannus then delivered a lecture on "Egyptian Architecture," illustrated by a large number of lantern-slides, made from photographs taken during a recent visit to Egypt. Mr. Stannus said he had had an opportunity of going to Egypt last winter, and he took some photographs while there, and he thought he might place before the members some of the results of his visit.

In studying Egypt, it was best to begin with a map, and to realise the surroundings. Egypt was two countries—Lower Egypt and Upper Egypt. It would help them to understand Egyptian architecture if they remembered that, and also that the physical nature of the two countries was different. In Lower Egypt, *i.e.*, the Delta, they had what was really a swampy morass, where reeds grew to a great extent, and especially the papyrus reed. So much was this the case that in olden times the papyrus came to be regarded as the national flower or plant, just as we speak of the rose of England, the shamrock of Ireland, the thistle of Scotland, and the leek of Wales. There was also plenty of mud; and hence they used the bundle of reeds plastered with mud for constructional building purposes, though later, when translated into stone, the reeds became more or less of a decorative feature. Lower Egypt, too, was nearest to a timber country, *i.e.*, the hills of Lebanon.

In Upper Egypt, on the contrary, they found the lotus and the rocky cliffs, which gave rise to rock-cut caves, stone piers, etc. The valley of the Nile was Egypt; there was no other Egypt but the valley of the Nile and the Delta—and the plant that grew in the Nile valley was the lotus. After every inundation of the river, the lotus sprang up, and it had become associated in the minds of the people with the goodness of the gods—for if there was a good inundation the lotus was plentiful. On festal occasions the lotus-flower was made use of in decorations, and in some paintings we saw ladies wearing garlands of the lotus-flower on their heads. The lotus leaves were used to decorate mummy-cases, coffins, or tombs, and in some cases the Egyptians used to tie little bouquets of lotus-flowers round the tops of their columns in their funeral shrines and their ordinary houses, so that the lotus became associated with the top of the support, and it was only one step more to become the motive for the capital.

It is always useful to distinguish between the different countries, with their products. The materials available in each country dominated the design, both in construction and decorative details, in early times; and the differences were more pronounced. Up to the Eleventh Dynasty there was a paralleled development of the compound shaft in Lower Egypt, and the pier in Upper Egypt. When people could get stone in large masses they used a trabeated construction; whereas if they had only reeds they had to tie them in bundles in order to get strength. In the Eleventh and Twelfth Dynasties the workmen had mastered their materials with better technical equipment; and there were better carrying facilities, hence it was possible to bring down the stones of Upper Egypt into Lower Egypt, and so obliterate to some extent the difference between the two countries.

It has always happened, when two countries had different products, that their arts were different, but with an interchange of products there was an interchange of arts, and that difference likewise was obliterated to a great extent in the case of Upper and Lower Egypt. Some people regretted the introduction of railways, and there was no doubt the railway had tended to obliterate the local differences in England and other countries. So with the improved carrying facilities in Egypt, the same thing had happened.

The next stage of the development came when the Hyksos had been driven out, Egypt was one country, and the King styled himself "Neb Taui"; and the symbolic plants of the two countries, the papyrus and lotus, were combined in decorative representations.

Still later, when the Kings of the Eighteenth Dynasty travelled, hunted, and conquered, and married the ladies of Asia Minor, exotic designs were introduced into Egypt from the countries of Asia.

There was also a period when the Egyptians introduced symbolism more often into their capitals, which show heads or faces of Hat-hor, who was a later form of their earlier goddess Isis. Afterwards there was a period of richness in detail, when Egypt came in contact with Greek art, which caused a renaissance of Egyptian detail and style in the time of the Ptolemies, by the Greek principles and mind working with Egyptian details.

Mr. Stannus then showed a large number of lantern-slides, grouped as follows:—The Country, the Materials, the Stone-orders, the Capitals, the Pylons, and the Clearstories. The illustrations included a native Shelter, supported by bundles of maize-reeds, which was very strong; part of the wall of the old Temple of Osiris; brick Vaults used as granaries and wine stores at Thebes, built 3,000 years ago, in sloping courses of unburnt brick, with a pebble between; which were as strong to-day as ever they were.

In demonstrating the treatment of columns, Mr. Stannus made some interesting remarks on the development of the column from the square pier up to the sixteen-sided figure, and he gave several lantern illustrations, showing square, polygonal, and other columns. The square treatment included the Temple of Kha-f-Ra; the Temple of Tehut-mes III. at Medinet-Habu; and the Temple of Sety I. at Abydos. The Polygonal:—At Beni-hasan the tomb at Khnum-hetep, the tomb of Ameni, and a portion of the beautiful Festal Hall of Tehut-mes III. near Karnak. One illustration was of part of the Temple of Sety I. (Nineteenth Dynasty) at Abydos, showing pilasters.

As to capitals, there were the Bud capital, the Flower capital, the Palm capitals, the Ptolemaic capitals, and the Hat-hor capitals. Mr. Stannus pointed out the differences between the various kinds: the lotus was rather more convex than the papyrus, and so with the buds. The sepal was as long as the petal in the lotus, whereas in the papyrus the sepals were short, and the beautiful fluffy stuff which grew out was much longer. The following were among the slides showing the lotus-bud capital: Tomb of Ptah-shepses (Fifth Dynasty); tomb of Khety (Eleventh Dynasty); the sanctuary of Tehut-mes III. near Luxor; the plan of the court which Rameses skewed in order to avoid pulling it down; the beautiful court of Amen-hetep III. near Luxor, etc. The lotus-flower capital was shown in two little toilet-vases of green pottery, found last year at Abydos; the beautiful pectoral of Usr-t-sen III. (B.C. 2681-2660), and capitals from Philæ Birth-house of Energetes II. (B.C. 120). The papyrus-flower capital was seen in the colonnade of Amen-hetep III. near Luxor, and in the Stelai of Tehut-mes III. near Karnak.

In some interesting remarks on the Palm-leaf capitals, Mr. Stannus, with the aid of diagrams and lantern-slides, showed the resemblance between the Mesopotanian capitals and growing palm leaves, and he suggested that the capitals had their origin in the palms, and he especially pointed out the representation in the capitals of the dates between the drooping and the erect leaves of the palm.

Having shown some Ptolemaic capitals, the lecturer gave a number of slides showing the origin and the development of the Hat-hor capitals. The first was a statue of Isis (typifying divine motherhood, in which cow-horns were represented), Temple near El Kab (one face only), Temple at Dêr-el-Bahri (two faces), Temple of Isis at Philæ (four faces), the Birth-house at Philæ, etc.

In dealing with the Pylon, Mr. Stannus showed slides of the Temple of Amen near Luxor, the two figures in the Theban plain, etc.

Several Osirid figures having been shown, the lecturer made some remarks on Clearstories, and showed, in conclusion, several illustrations of Karnak.

Mr. R. Phené Spiers, in proposing a hearty vote of thanks to the lecturer, said that in reference to the wavy course of brickwork at Abydos, did Mr. Stannus agree with the conclusions of M. Choisy on the subject in his new book? [Mr. Stannus: No.] Well, the subject was rather a long one to go into that night, but there was something to be said for the theory. M. Choisy found that these walls, with undulating, wavy courses, were built in the vicinity of streams of water or springs, and that all other walls were in high positions away from water. The author suggested that, in consequence of the changes of temperature between the night and the day, the mud-brick walls were built to allow of expansion without dislocating the structure. It was an interesting theory, arising out of the subject of construction in Egypt. Mr. Stannus had indicated the difference between the lotus and papyrus, but it might be as well to say that the papyrus plant was not to be found in Egypt now. He was not sure as to the date of the first lotus-flower capital. Mr. Stannus seemed to think it was not used until the Twelfth Dynasty, but he (the speaker) was inclined to think that even in the pectoral illustration which Mr. Stannus had shown the enclosures on each side were really intended for columns. As to why the Luxor entrance court was skewed, Mr. Stannus had come to the conclusion that there was an ancient temple in the foreground which had to be included within the new additions. It was such a long time since he (the speaker) was there that he was not able to say, but M. Choisy said that the temple was so near the river that the builders were obliged to do as they did. Mr. Stannus had taken the subject of the lotus-bud column a little further than was usual. It was a very ingenious piece of reasoning-out.

Professor Elsey Smith said he had much pleasure in seconding the vote of thanks to Mr. Stannus for his interesting and suggestive remarks, and for his beautiful photographs, and the manner in which he had used them and his diagrams.

Mr. J. D. Crace said that when he visited Egypt his attention was largely devoted to the Mahommedan architecture, and, although he visited the temples they had seen views of that evening, he did not study them as an Egyptologist. They could not but admire the method with which Mr. Stannus brought before them the different points he wished to make. The remarks by Mr. Stannus gave food for thought, though whether the deductions were in every case those which they could agree with, was a matter for each one to be guided according to the extent of his studies.

Mr. Ronald P. Jones supported the vote of thanks, and recalled Fergusson's remark as to the advantage of a visit to India, since it familiarised the architect with a complete pointed arch system which had nothing whatever in common with European Gothic. This remark, he thought, was doubly applicable to Egypt, as, in addition to the Saracenic work there, which was purer and more refined than any to be found in India, the ancient temples provided a striking contrast to the Greek and Roman

columnar architecture. In many points, such as the size of the architrave and abacus and their relation to the diameter of the column, the Egyptian order was very different from the European. Then there was also the contrast in the principles of temple planning, owing to the fact that the Egyptian temple was forbidden ground to the general mass of the people, and was only open to a select priesthood. This led to the development of a plan designed solely for internal effect, while the exterior presented a series of solid blank walls of great height, with the pylon towers forming a façade. Another striking contrast which gave interest to Egyptian work was that between the two styles themselves. For he did not think it possible to find in any other country two systems of architecture, developed at different periods, but under the same climatic conditions, which were so absolutely opposed to one another in principle, method, and effect as the ancient and mediæval Egyptian styles.

Mr. Arnold Mitchell said he must add his thanks as one who had not been to Egypt. They were fortunate in having a man like Mr. Stannus to come and give them the benefit of his knowledge and experience. It was only comparatively recently that the study of Egyptian history had been possible to students. Until the Rosetta stone was read, the history of Egypt was a closed book. A headmaster of a public school told him recently that one of his boys was actually taking down the notes of his class in hieroglyphics.

The President said that the subject was a closed book to most of them, but they could understand, in listening to the lecturer, what a fascinating study it must be if pursued on the spot. The reading and study from a book of Egyptian architecture was rather dry and uninteresting, but it was a very different matter when it was talked about in the pleasing way in which Mr. Stannus had dealt with it. It would be very interesting to hear some of Mr. Spiers's criticisms thrashed out more than they had been. Mr. Stannus's theory as to the development of the column was most interesting, and when Mr. Stannus was referring to the papyrus cap he (the speaker) could not help thinking of a little fable about the origin of the Corinthian cap, which is in "Gwilt's Encyclopædia." There was a little block of a basket of acanthus leaves which was given as the possible origin of the Corinthian cap; but one or two of the illustrations they had seen seemed to form quite sufficient basis for the idea that the Corinthian cap had its origin in Egypt.

The vote of thanks having been heartily agreed to,

Mr. Stannus, in reply, said there were at least a dozen other branches of the subject; but he had thought it best to limit his remarks to an attempt to classify the Egyptian orders. There had been several similar attempts, one by Sir Gardiner Wilkinson, which was a little unscientific, and he thought it would be best to show as he had done the gradual evolution of the subject. As to Mahommedan work, he had taken thirty or forty photographs at Cairo, but it had not been possible to show them that evening. As to Mr. Spiers's remarks as to the curved coursing of the brick wall at Abydos, there was no river nearer than the Nile, and that was nine and a half miles away, and he did not think the influence of the Nile would produce the effect. Professor Petrie gave the reason for the curving of the wall: it was in order to make a stronger piece of walling, and he would rather take that opinion than M. Choisy's. As to lotus-flower capitals, he admitted that there were representations or fancy pictures of them as early as the Fifth Dynasty, but he suggested that this would not decide much, because there were paintings from Pompeii showing architecture, but no one could found anything on them, and the same remark applied to the pectoral he had shown, and to the early representations of the lotus-flower capitals.

The Chairman announced that the next meeting will be held on the 27th inst., when Mr. Maurice B. Adams will read a paper entitled, "As to the Making of Architects," with examples of draughtsmanship. There will be an exhibition of drawings by well-known architects during the evening.

The meeting then terminated.

STAINED GLASS WINDOW, WESTBURY PARISH CHURCH.—A stained glass window has been erected on the south side of Westbury Parish Church, Bristol. The work was carried out by Messrs. J. Bell and Son, of Bristol,

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION:

SKETCHING AND PHOTOGRAPHY.

AT the sixth meeting of the current session, held on January 6, two short papers were read upon the relative merits of sketching and photography in the study of architecture. The subject was productive of a long and varied debate, in which members of the Association Camera Club took a prominent part, at the invitation of the Discussion Section.

Mr. Frank Lishman, in stating the claims of sketching, said that all present would agree that the aim of either method was the getting hold of the principles of design in the buildings under consideration, and not the mere collecting of illustrations. In sketching it was the *doing* of the sketch, the taking note, which counts, and the result was of secondary importance. But in photography the order was reversed, for there was practically no *doing* and no taking note in the same useful sense. In certain cases—sculpture, for instance—photography was essential to retentive study, but, generally speaking, it was imperative that the habit of using a sketch-book be firmly established before following the alluring pursuit of the camera. Whether on simple or ambitious lines, sketching should be intelligent, reflecting the mind's impression. It would not fail to bring the student into sympathy with the subject, in revealing its beauty or failure as each part was laid down, and as the whole was contemplated hour by hour. The camera alienated sympathy and annihilated time. The evolution of a sketch arose out of a process of analysis, in which relations of part to whole, of solid to void, proportions, grouping, and scale, were all considered. The critical faculties, which would otherwise lie dormant, were brought into play, inducing discrimination in essentials from non-essentials, accident from purpose. Photography did not awaken them. Mr. Lishman then drew attention to the many advantages offered by sketching—in taking notes, in expressing colour, and in fitting the result of the effort to a useful application of the study. Photography had narrow limits—it did not give planes, and its work was superficial at all times. A sketch might be made of any size or shape, and have all kinds of possibilities for future addition; this elasticity was of great importance.

Mr. G. H. Lovegrove then read a paper upon the photographic side of the investigation of architecture, first pointing out that the work of the camera extended the study to many more enquirers than the limit of sketching allowed. While admitting that the practice of photography did not train the hand and eye, the author thought that this was not the aim and end of all study. The great disadvantage of sketching was the length of time necessary adequately to treat a subject. In all ordinary works the camera would produce at least a dozen accurate representations in the same period, and then the building would be more fully examined and noted. Photographers were not necessarily in a hurry, as most sketchers assumed, and the faults of perspective or distortion made by the former were as capable of correction as mistakes made by the latter. Accuracy was more surely to be obtained by the photographic process; but it was at times too truthful in not admitting of the easy elimination of discordant features, a privilege which the sketcher enjoys. Mr. Lovegrove condemned the habit of working up or producing sketches from photographs; that was a misuse of the science. The camera could not now give us colour, and, indeed, was very liable to render false tones or colour values, though the recent advances in colour photography had undoubtedly raised hopes in this respect. One of the greatest benefits from the use of photography was to place the student on a level with his fellows at all times. To a very large extent the early, and often later, work of the sketcher was of no use to himself or anyone else in after study. In summarising the advantage of this side of the question Mr. Lovegrove claimed that a vast amount of time was saved, and the results contained accuracy, thereby proving of greater subsequent use. In this latter aspect it was significant that photography should take such a large place in the illustrations of all present-day architectural publications.*

* As far as our own publication is concerned, this is certainly not the case. The majority of our illustrations are from drawings, and we prefer that it should be so.—ED.

Mr. Ambler, in opening the discussion, proposed a vote of thanks to the authors of the papers. The speaker, after a careful review of the respective claims, and basing his conclusions upon a long experience as a sketcher, threw in his lot on the side of sketching, but it should of course be undertaken with certain definite and intelligent motives. An architect of eminence, in criticising his early sketches, characterised them as mere evidences of visits to certain buildings. Sketching was unquestionably the surest means of committing features to memory. It was noteworthy that the majority of the best architects of the day were able sketchers; there were, however, a few brilliant exceptions.

In seconding the vote, Mr. Wonnacott prefaced his remarks with the statement that he was a beginner, and, as such, considered photography as the best means of studying buildings, as it embraced all that had been claimed for sketching. He drew attention to the facilities for enlarging any desired part or detail, and in all cases advised the use of only the best possible apparatus.

Mr. A. H. Belcher considered that no man could become an architect who had not acquired proficiency in sketching, because, in the study of old work, it enabled the spectator to penetrate deeper into the principles underlying the design. Photographs were of less value in after years. He would summarise by suggesting the use of photography for general effects, sketching for details of design or construction and measuring, for a complete study.

Mr. F. R. Taylor supported Mr. Lovegrove's contentions, and did not admit that sketching accomplished what photography could not fulfil.

Mr. W. A. Pite said he came to learn. After what had been said he contended that the only way to absorb the characteristics of a building was by sketching. The result of one's labour would manifest the individual impression of the student, which was an important consideration. Photography reproduced mechanically a representation that was not useful for subsequent application. He regarded the photographers as a kind of sportsmen who went about shooting everything without reference to the object of their sport.

Mr. W. A. Forsyth thought the papers and discussion had taken hard and fast opposite lines; both photography and sketching were aids to the end in view, and, therefore, it was difficult, in his opinion, to make such a definite separation. The habit of taking notes was the more important from all points of view, yet it was not complete without photographic assistance. The principal merit in sketching was the process of analysis, which became necessary in knowledgeable work. One of the risks in the use of a camera was that failures were often discovered at the developing stage, which is usually done when the subject is far out of reach. The saving of time was no recommendation.

Mr. G. Sherrin was pleased to renew his acquaintance with the Discussion Section. He considered sketching imperative in the matter of an architect's training, in which photography should be an aid. The great circulation of photographic illustrations in the publications of the day was undoubtedly exercising an influence on modern architecture. He urged all young men to sketch regularly and wisely, because he saw in the present-day work of young architects very little application of the results of their studies.

After Messrs. Gunn, Gammell, and Mears had spoken briefly in support of the sketching side of the question, the Chairman, Mr. J. H. Pearson, called upon the Special Visitor to sum up the discussion.

Mr. Raffles Davison, after unfurling a humorous cartoon by Mr. Crane, proceeded to lay his views of the debate before the meeting. His great esteem for the Architectural Association, with its long record of self-help, induced him at once to accept the Committee's invitation. He took exception to the title of the subject before the meeting—"Sketching *versus* Photography," there should be no *versus*. Did the *opportunity* to photograph do away with the *obligation* to sketch? In approaching this subject he ventured to remark that the deadly sin in architecture, as in everything else, was *affectation*. He would say, 'To thine own self be true . . . thou canst not then be false to any man." It was affectation pure and simple to discount the power of drawing in the education of an architect. But it was necessary to have

an ideal; and an enthusiasm for a great ideal, which was the guiding spirit through seas of troubles in the art of architecture, would not be seriously checked even by a camera.

The use of a sketch or a photograph must largely depend on the mental attitude of the operator. To draw for the beauty of the sketch itself was one thing, but to obtain a useful record or valuable inspiration was quite another. Whereas the latter might be lacking in charm but yet fulfil its purpose, the former might possess that rigid accuracy to the exclusion of individual impression and inspiration; the broad-minded student would, however, endeavour to combine the ornamental with the useful. To become absorbingly conscious of proportions, rendering of detail, shapes and relations of parts, would produce a correct sketch from which it would almost be possible to build; but if, in a mood of keen appreciation, a rapid but decisive summing-up of the whole was hit off, you might obtain an inspiration of the highest value, such as no setting forth of hard facts would unfold. Mr. Raffles Davison then drew attention to what he considered a striking illustration of this aspect of the subject. A recent issue of the *Pall Mall Magazine* contained illustrations of the English Lake District in which photographs and sketches of the same view were placed side by side. Here the rigid accuracy of the photograph contrasted with the plastic truthfulness of the sketch—the mechanical record with the mental impression of the artist, Mr. Maurice Greiffenhagen. The spirit of the lakeland scenery was absent from the photograph, but the very essence of it was to be found in the sketches. The chief aim of students, therefore, should be to sketch for the spirit of the architecture, and their work should show that pleasure and enthusiasm were involved in its production.

The camera was more expensive, more cumbersome, and more uncertain than the sketch, elements which were comparatively unimportant; but, if the use of the camera deadened the spirits, obscured the artistic faculty, destroyed self-reliance, or weakened the drawing power, it should be used sparingly and not allowed to take the place of a better method.

If it were right to offer advice to those present, he would counsel the cultivation of broad views and wide sympathies—to raise and maintain the ideal, or little will result from the labour. The dissecting analysis of Gothic cathedrals and country houses, the photographic study of their details, the careful measurement of the bones of their construction, would never arouse the spirit that created them. The difference between the photograph and the sketch lay more in the process of its working than in the result. Turn the microscope or camera on to everything, if you will, but leave the sketch uppermost. In the sketch it was seen how the architecture appealed to the artist, and so, we might add, to our knowledge and estimate of it. In the photograph it would be observed that a fine lens was used together with beautiful solutions and printing-paper; indeed, the whole mechanical apparatus has been carefully manipulated. In concluding, the Special Visitor said that he felt the members of the Architectural Association were a body of men eager to pursue art for its own sake, who will neither be deluded by the sketch nor the photograph from the real aim of their ambitions.

THE SURVEYORS' INSTITUTION.

An ordinary fortnightly meeting of the Surveyors' Institution was held on Monday, at No. 12, Great George-street, S.W., Mr. H. T. Steward, Vice-President, occupying the chair in the absence of Mr. Albert Buck, the President.

New Hon. Secretary.

The Secretary, Mr. Rogers, having read the minutes of the last meeting, Mr. Percivall Currey, the newly-elected Hon. Secretary, was introduced to the meeting by the Chairman, who said that he could not let the opportunity pass without saying a few words in grateful recognition of the valued services which their late Hon. Secretary, Mr. J. W. Penfold, had given to the Institution. He could say this with conviction because he happened to be one of the first members of the Institution, and he knew that in the early days, and for many years afterwards, Mr. Penfold worked hard for their society, and it must be very gratifying to him to see the Institution in such a flourishing condition as it is to-day. That must be great satisfaction to Mr. Penfold, and also to know that, after the hard work he had done for the Institution and the immense amount of pains he had taken for its benefit, his services were thoroughly recognised and appreciated by all of them.

Mr. Currey, before reading the donations to the library and library fund, thanked the members for having elected him, and said he hoped to fill worthily the office so long and so ably occupied by their old friend Mr. Penfold.

Industrial Decentralisation and Housing.

A vote of thanks having been accorded to the donors, the Chairman said that the business of the evening was to resume the discussion on Mr. H. T. Scoble's paper, read on November 23,* on "Industrial Decentralisation: an Important Factor in the Housing of the Working Classes."

Mr. T. W. Wheeler, K.C., said that in substance he agreed with everything that Mr. Scoble had said. He thought that Mr. Scoble's phrase, "dormitory towns," was an admirable one, and that the bringing of people into a big city in the morning in crowded conveyances, taking them back at night in the same way, and affording them a few hours' sleep in their own homes was not altogether satisfactory. He held that the workman, if possible, should not be taken to live far away from his work, but that the workman and his work should co-exist. In reference to the action of Messrs. Ransome and Co. and Messrs. Elliott Bros., in removing their works from London, he thought that that was a wise step on the part of those firms, but it was not stated that they had been able to take their workpeople with them. At Port Sunlight the problem was apparently solved—the workman and his work co-existed. It was well to ask: Who are the working classes? A considerable portion of the working class was able to provide decent houses and accommodation, and that should be remembered by all who were trying to provide the best homes possible—there was no occasion for philanthropic effort on behalf of these people; but, unfortunately, there was a large class who could not pay for decent accommodation. He objected to municipal trading, but he recognised that there was a class—a growing class, he was afraid—for whom it might be necessary a municipality should provide. For that class, who could not pay remunerative rents in London, he had come to the conclusion that the municipality might do something. The municipality were doing something for this class in Camberwell, for they had, not in their own name, but in the person of elected agents, gone into the market, bought up squalid property as cheaply as they could, repaired that property and made it healthy, and then had let it at rents which the class in question could afford. He thought that in that direction a great deal might be done. He was not in favour of compounding for rent, and he thought it would be an admirable thing if the British working-man were brought up face to face with the liability of paying his rates. London was not a densely occupied city; there was not overcrowding to the acre, but there was, for all that, overcrowding of a twofold character—*i.e.*, an overcrowding of an area, in some cases, and overcrowding per room, which was a most offensive and dangerous condition of affairs and which did obtain in London to a large extent. He could not see why London was so largely used for manufactories, and he thought that many factories which are now in London should have been told to go outside; at all events, they should not have been, and should not be, encouraged to come in as they were under the provisions of the Act of 1869.

Mr. Douglas MacKenzie said he had been engaged for a good many years in mechanical transport, and as the use of motor vehicles for mechanical transport of goods had come to the fore he had endeavoured to keep up with the subject. Every case, he found, had to be considered on its merits, and anyone wishing to use this form of traction would have to take what data he could obtain bearing on his own circumstances and then decide for himself. Many factories, in order to get good siding accommodation, had been erected close to railways, with the result that they were often placed in low-lying and unhealthy situations, while many excellent sites had been neglected. Was it possible to utilise those sites? He thought it was. Motor transport, for comparatively short distances, was able to compete with railways in the matter of rates, because the railways were eaten up by terminal charges. Five and a half tons was the critical paying load for motors, and if a manufacturer could not make up that load he would find it better and cheaper to send his goods by horse rather than motor transport. Unfortunately, the roads leading to many of these sites were not suitable for motor vehicles, for they were very soft. Even close to London many by-roads had not proper foundations or crusts, and it was impossible to work motor vehicles over them. He thought that a manufacturer who wished to erect his works on one of these sites should consider whether it would not be well, whether it would not pay, to have the road connecting with the main trunk road made up to a proper state. If that were done, the road would cost next to nothing in maintenance, and would enable the manufacturer to use motor vehicles to full advantage. Another point to be remembered was that in some districts there was considerable prejudice on the part of local authorities against mechanical transport, and he specially mentioned the Hornsey District Council. It must not be forgotten that mechanical transport was really an expert engineer's business. Many people who had tried to use motor vehicles had failed because it was not their business. There were, however, several motor transport firms in London who were prepared to quote a manufacturer who thought of moving his factory into the country. In many cases goods were delivered in small quantities, and if a number of journeys had to be made for the purpose that would prove costly, but the difficulty could be got over by the provision of stores. Mr. Scoble had mentioned tramways as affording some means of transport for goods, but these tramways were almost entirely given up to the transport of passengers. It seemed to him that, certainly in the case of tramways built under the Light Railways Act, they should be used for goods transport as well as for passenger transport.

Mr. G. S. Hodgson said that, as an engineer who had been in the United States for twelve years, his experience was that if the Americans had the same machinery as we have—and they often would be only too glad to have it—they would not scrap it sooner than we do; he was glad to corroborate what Mr. Scoble had said on this matter.

Mr. A. E. Baylis said that a manufacturer having a non-commercial basis of profit—a profit in the way of some by-product—who was limited in the effects of competition by the few number of firms engaged in the industry, could afford to erect a model village, whereas a manufacturer working on an ordinary commercial basis, in competition, and with a margin, say, of ten to twenty-five per cent, on his main product, with no by-product, had not the margin with which to erect a model village. The by-products made it possible to erect a model village. Suppose the same factor were acting in the building industry. Assume, for instance, that the by-products on joiners' work—shavings and sawdust—could be converted into a patent medicine or food, or that the rubbish heap of the bricklayer or plasterer were a potent source of radium, in this event, he thought they would agree, there would be no such thing as a housing problem to solve.

Mr. A. King said that decentralisation was taking place, but it was neither necessary nor desirable to remove some works and trades from a centre like London into the country. It was a matter for the manufacturer, and the manufacturer should be left to decide. Industries had to be carried on in a good centre, and this was especially so in the case of some. To remove these trades from London, for instance, would be a mistake. Then take London from the health point of view; there was no city in the world to compare with it.

Mr. A. J. Martin said that the movement in favour of decentralisation afforded the landowner a good opportunity of improving the value of his estate by holding out to manufacturers inducements to settle on it.

Mr. H. Chatfeild Clarke said that Mr. Scoble's paper was an excellent one, and if they had many more as good the Council would have a difficulty in awarding the gold medal recently offered for the best paper read during the session. The question of the housing of the people was, like the poor, always with us. About forty years ago the matter was very pressing, and then it was that several of the artisans' dwellings companies started and commenced the good work they had done since, followed by the municipalities. As to the housing work of the municipalities, it must not be forgotten that they had had to pay for sites

* See our issue for November 28 last.

in towns such a figure that it was perfectly impossible for them to build dwellings to pay any percentage at all, and the first thing they had to do was to write down the value of the site, as the London County Council had done, by a very large figure—in one case, he believed, as much as 200,000*l.*—before they handed it over to the Housing Committee to build upon. That did not seem to be business, and he did not think it was for the good of the community at large in the long run. The most they could pay for these sites was something under 6d. per foot super.—it ought not to be more than 3½d. or 4d. A company, even when paying this ground rent, was only able to pay from 4½ to 5 per cent. If a town could borrow at 2½ to 3 per cent., while that might be right and fair, it destroyed private enterprise, for no one could or would compete with the municipality. Another important matter was: How was it possible to stop the great influx of people into the towns? Only last week he heard—he hoped it was not true—that men near one of the midland towns preferred to sleep in the slums rather than the cottage in the country, in order to get the brightness of the gas light of the towns. He agreed that London *per se*, especially the east-end of London, was one of the healthiest towns in the kingdom. What streets could be better than the wide streets of the east-end? The whole question was one of £ s. d. The two model villages mentioned by the author could hardly be treated as practical politics, for, in the words of the promoter of one of them, they afforded an illustration of "what could be done with unlimited money." While it was possible for one or two manufacturers with practically unlimited money to make such provision for the comfort of their workpeople, how could other manufacturers do the same without the necessary money? Where was the capital to come from to erect cottages which did not pay 4 per cent.? They might let cottages in special cases at 5s. which were worth 7s. 6d. or 8s., but could they do that to any large extent? And could they take the factories into the country? Having got the factories in the towns, where distribution was to take place, he was inclined to think that the best solution of the problem was to leave them alone and house the people some distance away. The easier modes of access by electric trams, shallow trams, and motor 'bus or carriages, made it possible in the case of many towns to take the people three or four miles to some village where there was plenty of fresh air, and he did not think that a short journey to and from their homes was such a terrible disadvantage to the people. Around Sheffield, for instance, there were some beautiful and healthy places to which the people could be taken by cheap and rapid transit. He was much struck while at Leeds, in connexion with the visit of the Institution to that city, by the existence of a system there of which many of the inhabitants seemed proud, *i.e.*, the system of back to back houses. He believed that nothing could be worse than that system, for he felt it was absolutely wrong to have no through ventilation to staircases and sleeping-rooms, and to have conveniences practically at the front door. He admired the courage of the author in putting forward his views, but he felt that there were serious business and financial difficulties to be overcome before the problem could be solved on the lines advocated. He hoped that they would be overcome, and that many factories would be removed to the country, but for the present he felt that they had to see whether some mode of quick transit would not solve the difficulty.

Mr. Scoble, in the course of a brief reply, said that as to Mr. Wheeler's remarks about Messrs. Ransome's and Messrs. Elliott's factories, in the case of Messrs. Ransome the removal was too far away for it to be possible for the workpeople to follow, but in the case of Messrs. Elliott it was found that the workpeople gradually came to reside in the neighbourhood. As to passenger tramways being used for goods traffic, in some of the passenger tramways in the Midlands a great deal of goods was carried. At any rate, arrangements had been made for doing that. As to estate owners providing sites for manufacturers, that had been done at Trafford Park. Excellent sites had been provided, and of course the owners of the estate had benefited. At Port Sunlight money was not a consideration, but at Bournville the buildings now erected were constructed to pay 4 per cent. If a manufacturer got an increased return by more efficient labour, and at the same time received 4 per cent. on his capital, surely he was doing a good thing for himself as well as his workpeople. The meeting then terminated.

The next meeting will be held on the 25th inst., when Mr. Ralph Nevill, K.C., will read a paper entitled "The Garden City Scheme."

METROPOLITAN ASYLUMS BOARD.

THIS Board resumed its sittings after the Christmas vacation on Saturday last week, Sir R. Hensley being in the chair.

Correspondence was received from the Local Government Board sanctioning the proposal to enter into contracts with Messrs. Belliss and Morcom, Ltd., and Messrs. Drake and Gorham, Ltd., for work in connexion with the electric lighting of the Fountain Hospital at an estimated cost of 1,136*l.* and 2,792*l.* respectively, without first advertising for tenders; authorising the expenditure of an additional sum, not exceeding 450*l.*, on the erection of additional sanitary annexes at Caterham Asylum, the amount to be borrowed, and repaid in fifteen years; stating that they had approved of the plans relating to the proposed reconstruction of the South-Eastern Hospital, and promising to issue an order authorising the expenditure and borrowing of 135,200*l.* in respect of the proposed work, the loan to be repayable in twenty years; sanctioning the proposal to enter into a contract with Messrs. Meldrum Brothers, Ltd., for the installation of a refuse destructor at the Park Hospital at a cost of 320*l.* without first advertising for tenders; and authorising the provision of additional accommodation at the South-Eastern Ambulance Station, at an expenditure of 1,900*l.* Some discussion took place on a motion by Mr. Helby to rescind a resolution passed at a meeting of the Board in November by which they agreed, subject to the approval of the Local Government Board, to purchase a certain property at Hayes for the provision of a home for the feeble-minded. Mr. Helby contended that the Board had plenty of land on which buildings could be erected for the purpose. The motion was seconded by Colonel Graham, and carried by thirty-six votes to ten. On the recommendation of the Finance Committee it was agreed to make application to the Local Government Board for an order sanctioning the expenditure of a sum not exceeding 4,350*l.* on the extension of the generating plant at the Grove Hospital, and the wiring of the Fountain Hospital in connexion with the proposed lighting of that hospital by electricity. The action of the Works Committee in appointing Messrs. Northcroft, Son, and Nicholson to take out the quantities for the cleaning and painting works and repairs about to be carried out at the Eastern and North-Eastern Hospitals was approved. The following particulars of the Engineers' estimate of cost of cleaning and painting works at the various institutions during 1904 was submitted by the same committee:—

Hospital.	Engineer's estimate of cost.
Eastern	£850 0 0
North-Eastern	1,237 10 0
South-Western	744 0 0
Grove	245 0 0
Park	183 0 0
Northern	80 0 0

The Asylums Committee were authorised to carry out, at an expenditure of 509*l.*, the general cleaning and painting work required at Caterham Asylum during 1904; and 116*l.* 10s. on work required in the female centre building of the same asylum.

COMPETITIONS.

SCHOOLS, MANLEY PARK.—The assessor appointed by the Withington Education authority placed first the designs of Mr. Ernest Woodhouse, architect, 88, Mosley-street, Manchester, for new schools at Manley Park; and he has been instructed to proceed with the work.

MIDLAND FEDERATION OF BUILDING TRADE EMPLOYERS.—In the report of the Midland Centre of the National Federation of Building Trade Employers, presented at the annual meeting held at Birmingham, under the presidency of Mr. C. H. Barnsley, reference was made to the depressed condition of the industry throughout the Midland Counties, the information from some localities showing that the conditions had not been so discouraging for a long time. The following officers were elected for the ensuing year: President, Mr. J. Sharman Wood (Worcester); vice-presidents, Mr. H. Willcock (Wolverhampton) and Councillor F. G. Whittall (Birmingham); hon. treasurer, County Alderman, J. Bowen, J.P. (Birmingham).

Illustrations.

COMPETITION DESIGN FOR STOCKPORT TOWN HALL.

WE give this week the perspective view, plans, and detail elevation of the design by Mr. H. T. Hare, which obtained the third premium in the recent competition for Stockport Town Hall.

The following is the architect's description of his intentions in the design, embodied in the report sent in with it:—

"The schedule of accommodation has been closely followed, there being practically no deviation from the schedule of requirements. The plans have been so arranged as to work economically with the somewhat difficult levels of the site, and with a view to avoiding, on the one hand, an excessive amount of excavation, and, on the other, great waste in basements or spaces under floors. Provision has also been made for the possible addition of extra offices on the site of the adjoining chapel if it should be acquired (as doubtless it will) at some future time.

"Each department has been kept entirely distinct and self-contained, and the access to each is direct without passing through the corridors of any other department. The convenient relation of the several officials has also been carefully considered.

"The Town Hall has been placed on the Edward-street frontage, this being the highest portion of the site and the access most convenient. Ample exits, entrances, and cloak-rooms have been provided. A gallery has been placed at one end only, instead of at end and sides as suggested, but the full number of seats is allowed for. Side galleries are of little practical use except for the front row of seats, and further they render a successful architectural treatment of the interior of the hall extremely difficult, if not impossible. The Town Hall is, however, so designed that side galleries could be added if they are specially desired. A large platform or orchestra is provided at one end. The hall is accessible from the main staircase and entrance of the Municipal Buildings, so that it would be conveniently available for civic functions, etc.

"The buildings are proposed to be faced with Darley Dale or one of the excellent Yorkshire building stones, and the roof to be covered with Westmorland slates. The whole of the floors and staircases to be of fireproof construction, and the flat roof to be covered with mineral asphalte. The walls in the internal areas to be faced with white glazed bricks.

"The joinery in the Council Chamber, Town Hall, Committee Rooms, etc., to be of wainscot and other hard woods, and the ceilings to be in modelled fibrous plaster. Marble would be used in the finishing of the entrance hall and main staircase.

"The heating to be by low-pressure hot-water throughout. The ventilation of the Council Chamber and Town Hall would be effected by mechanical means, as indicated on the drawings, and the offices by flues carried up in the chimney stacks."

The architect's estimate of the cost of the building is 54,781*l.*, exclusive of the upper part of the tower, which would add 4,500*l.* more.

MISTRESSES' HOUSES: ST. FELIX SCHOOL, SOUTHWOLD.

THE drawing shows a pair of mistresses' houses which have just been added to St. Felix School, Southwold.

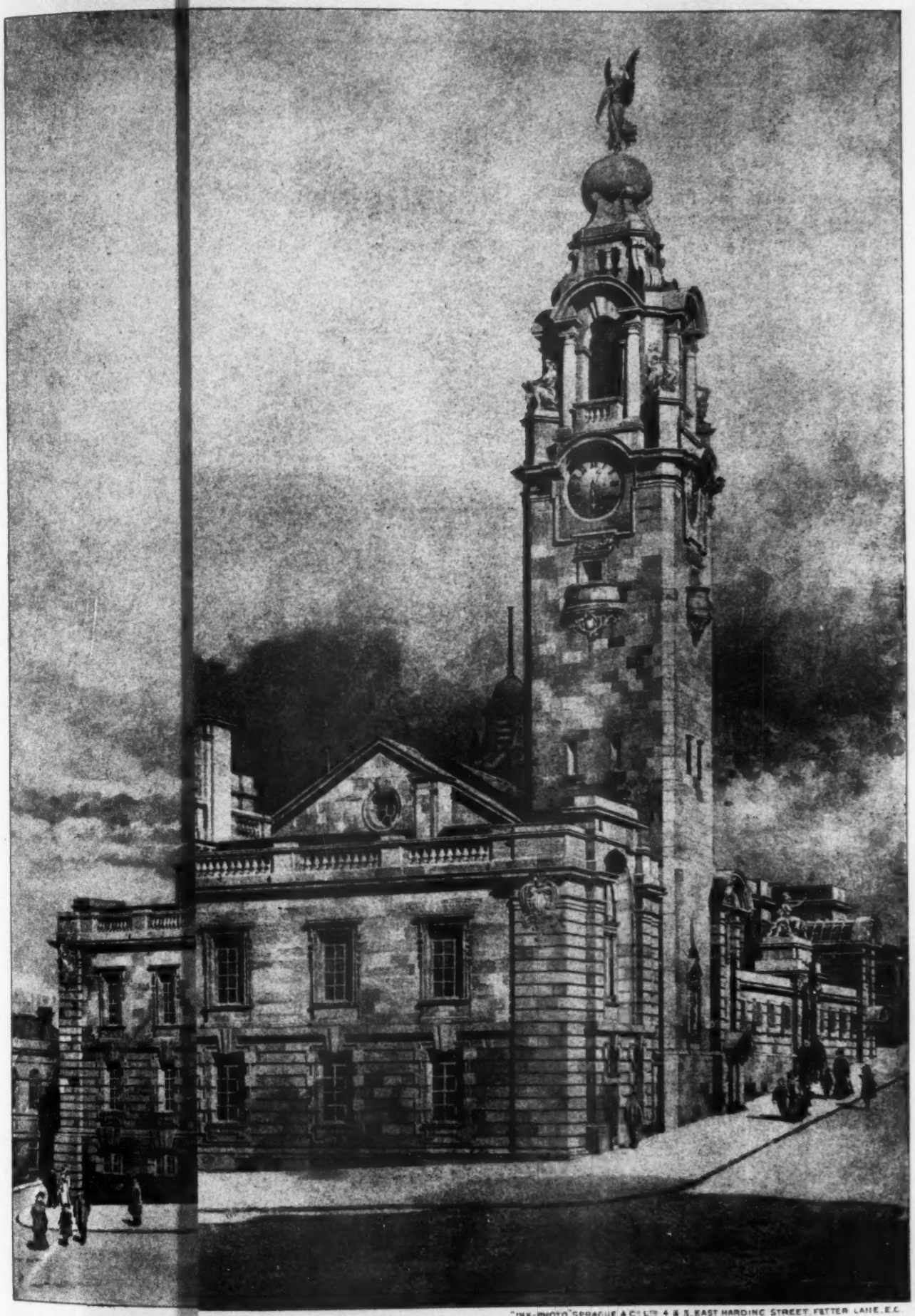
The school is worked upon the separate house system, and these are small houses for sixteen girls each, all teaching being carried on in a separate school block.

Red brick, with a little Portland stone, and tile roofing are the materials used. Messrs. John Youngs and Son, of Norwich, are the contractors, and the architect is Mr. Arnold Mitchell.

AN ARTIST'S COTTAGE.

THESE are sketches made by Mr. W. A. Pite for an artist's cottage proposed to be built at Great Malvern, but which, as it turned out, was not executed.

The studio is arranged as two rooms with different lights, which can be either separated or thrown into one.



"INK-PHOTO" SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET FETTER LANE E.C.

T. HARE, F.R.I.B.A.

Illustrations.

TITION DESIGN FOR STOCKPORT TOWN HALL.

E give this week the perspective view, plans, and detail elevation of the design by Mr. H. T. Hare, which obtained the third premium in the mpetition for Stockport Town Hall. llowing is the architect's description of ations in the design, embodied in the nt in with it:—

schedule of accommodation has been followed, there being practically no from the schedule of requirements. ns have been so arranged as to work cally with the somewhat difficult levels te, and with a view to avoiding, on the d, an excessive amount of excavation, the other, great waste in basements or nder floors. Provision has also been the possible addition of extra offices on of the adjoining chapel if it should be (as doubtless it will) at some future

department has been kept entirely and self-contained, and the access to direct without passing through the of any other department. The co-relation of the several officials has also efully considered.

Town Hall has been placed on the street frontage, this being the highest of the site and the access most con- Ample exits, entrances, and cloak-ave been provided. A gallery has been t one end only, instead of at end and uggested, but the full number of seats is for. Side galleries are of little practical pt for the front row of seats, and further der a successful architectural treatment terior of the hall extremely difficult, if ossible. The Town Hall is, however, so that side galleries could be added if specially desired. A large platform or is provided at one end. The hall is e from the main staircase and entrance unicipal Buildings, so that it would be ntly available for civic functions, etc. buildings are proposed to be faced with Dale or one of the excellent Yorkshire stones, and the roof to be covered estmorland slates. The whole of the d staircases to be of fireproof construc-l the flat roof to be covered with mineral . The walls in the internal areas to be th white glazed bricks.

joinery in the Council Chamber, Town mmittee Rooms, etc., to be of wainscot r hard woods, and the ceilings to be in l fibrous plaster. Marble would be the finishing of the entrance hall and ircase.

heating to be by low-pressure hot-water out. The ventilation of the Council r and Town Hall would be effected by cal means, as indicated on the drawings. offices by flues carried up in the chimney

rchitect's estimate of the cost of the is 54,781*l.*, exclusive of the upper part wer, which would add 4,500*l.* more.

ESSES' HOUSES: ST. FELIX SCHOOL, SOUTHWOLD.

drawing shows a pair of mistresses' which have just been added to St. Felix Southwold.

chool is worked upon the separate house and these are small houses for sixteen ch, all teaching being carried on in a school block.

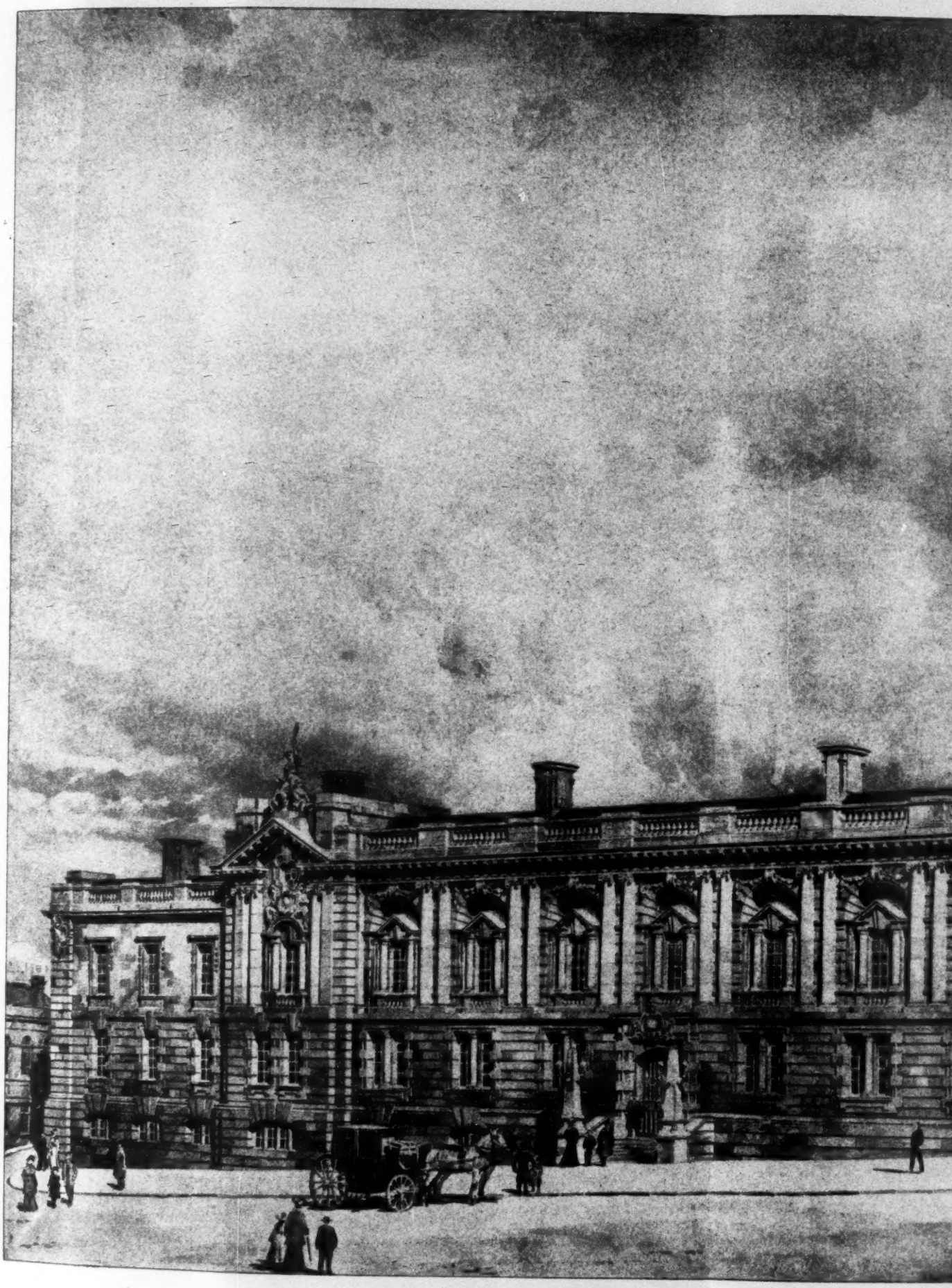
brick, with a little Portland stone, and fing are the materials used. Messrs. bungs and Son, of Norwich, are the con-, and the architect is Mr. Arnold

---

AN ARTIST'S COTTAGE.

are sketches made by Mr. W. A. Pite artist's cottage proposed to be built at alvern, but which, as it turned out, was cuted.

tudio is arranged as two rooms with lights, which can be either separated n into one.



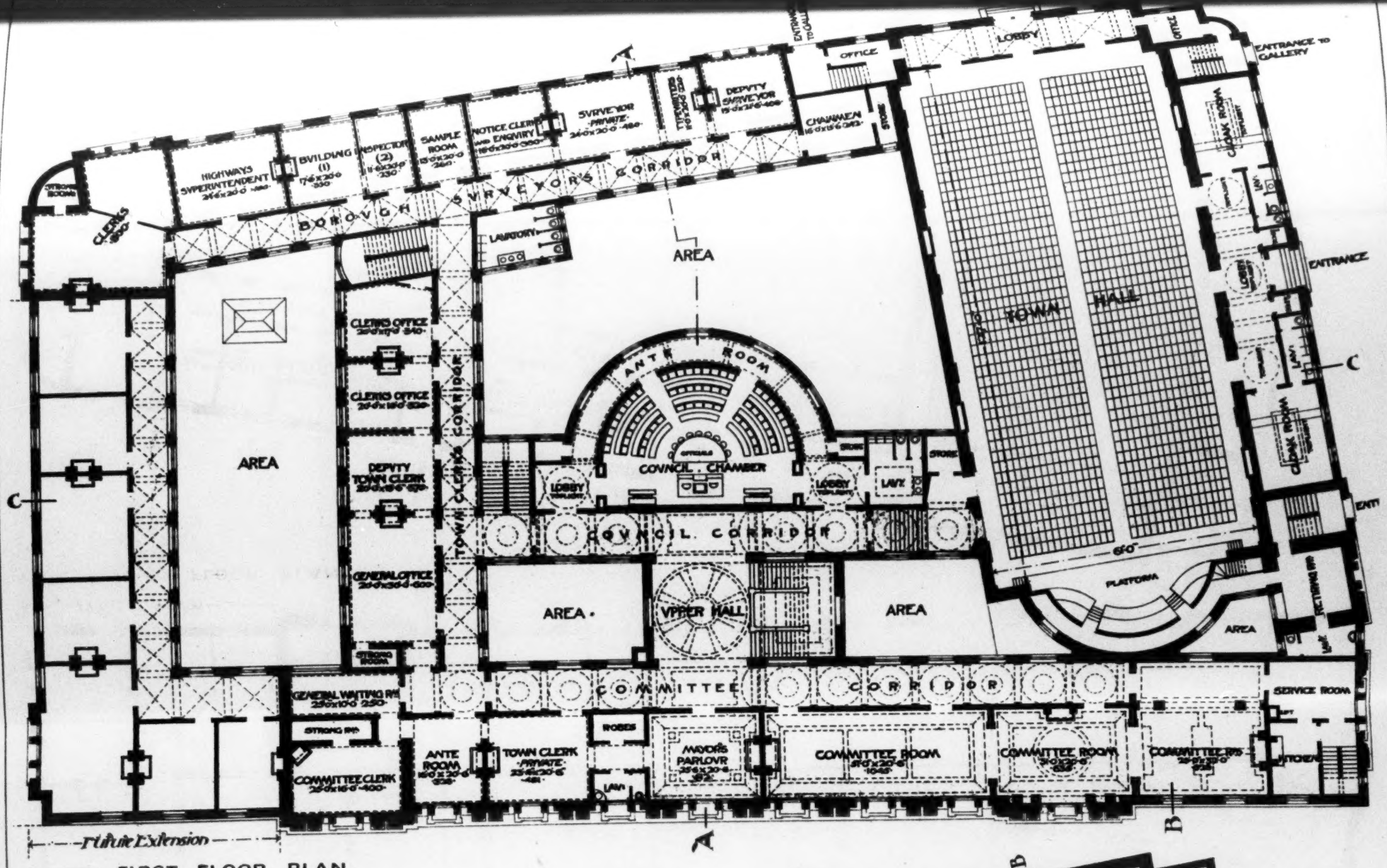
STOCKPORT TOWN HALL COMPETITION: THIRD

PERSPECT

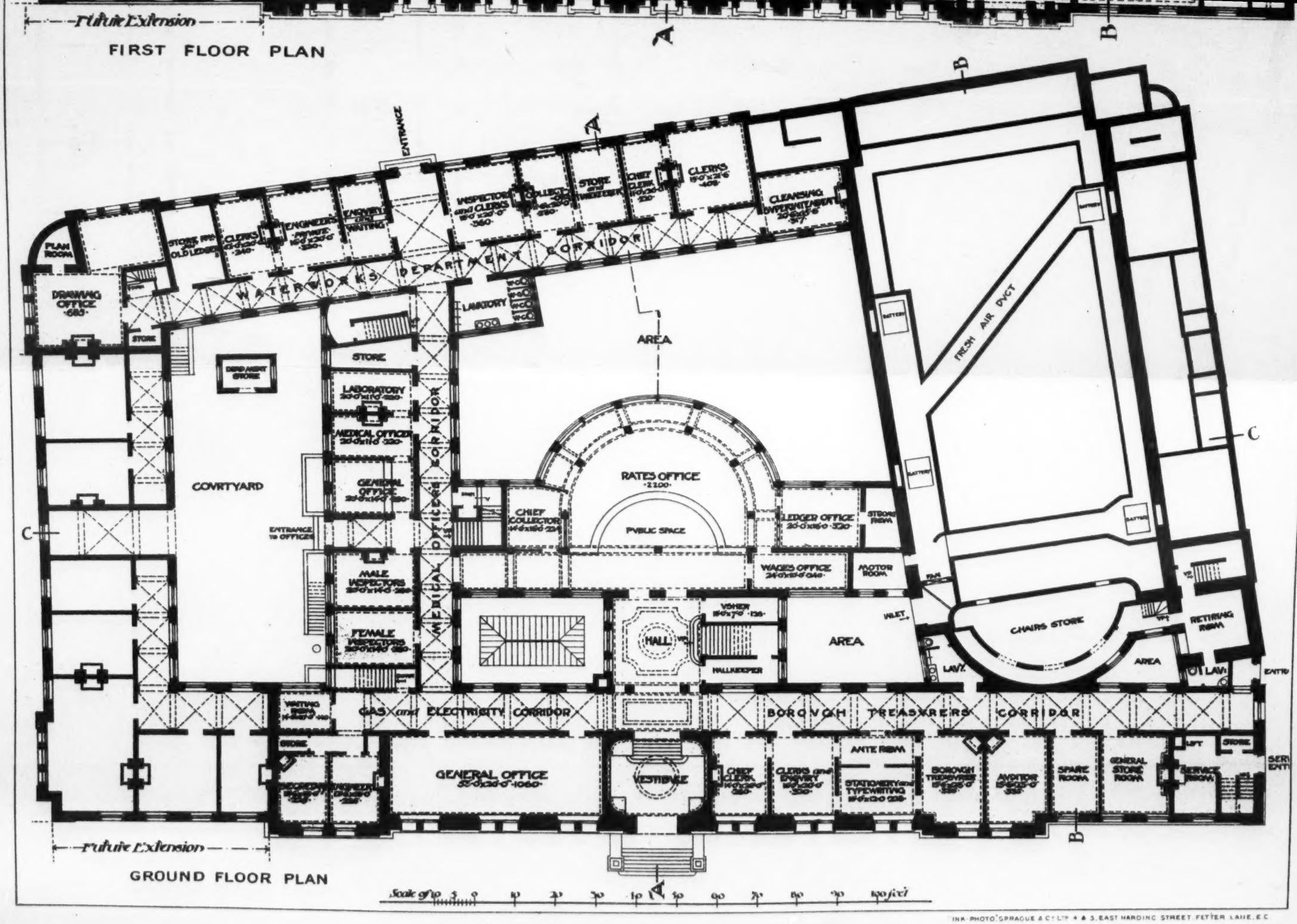
"INK-PHOTO" SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET, FETTER LANE E.C.

ON: THIRD PREMIATED DESIGN.—By Mr. H. T. Hare, F.R.I.B.A.

PERSPECTIVE VIEW.



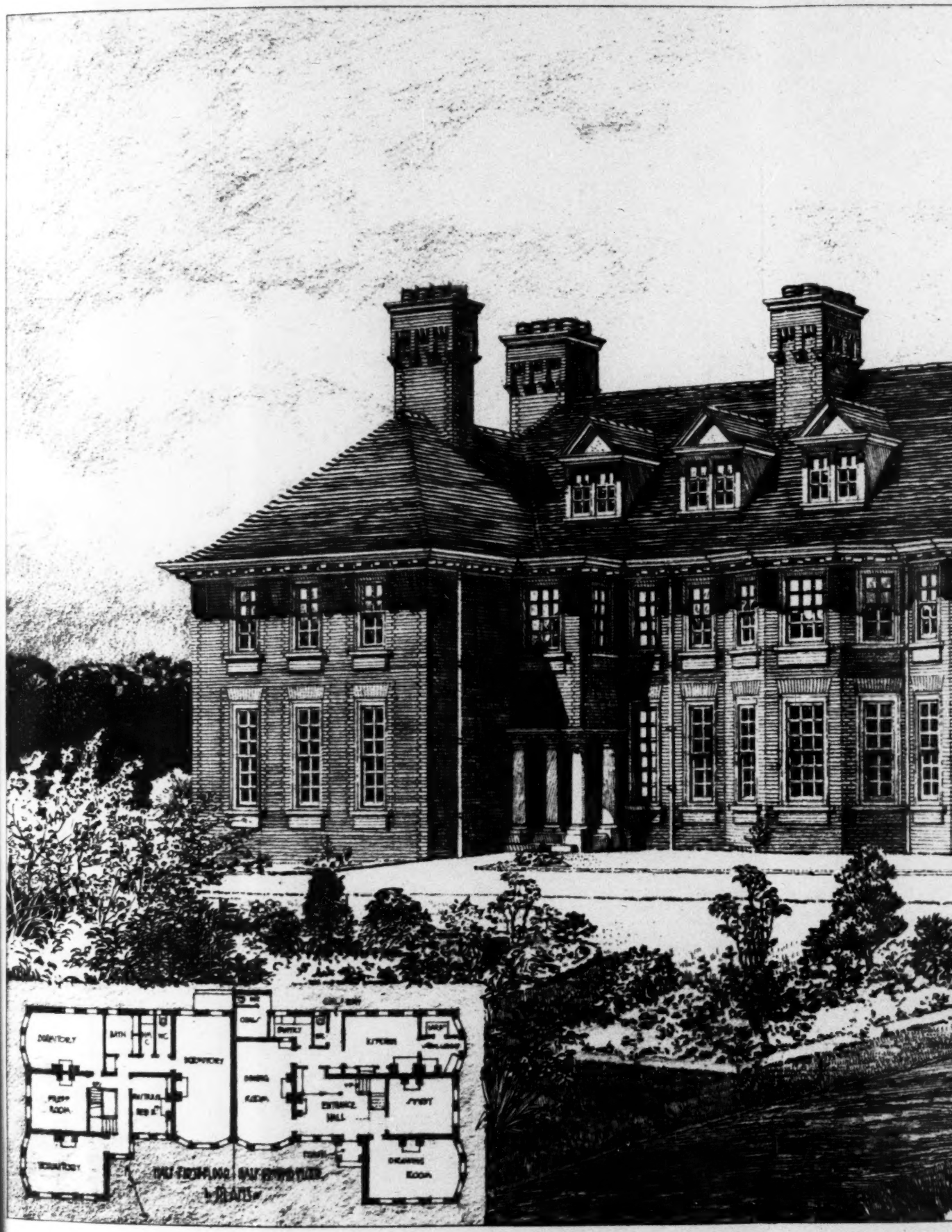
FIRST FLOOR PLAN

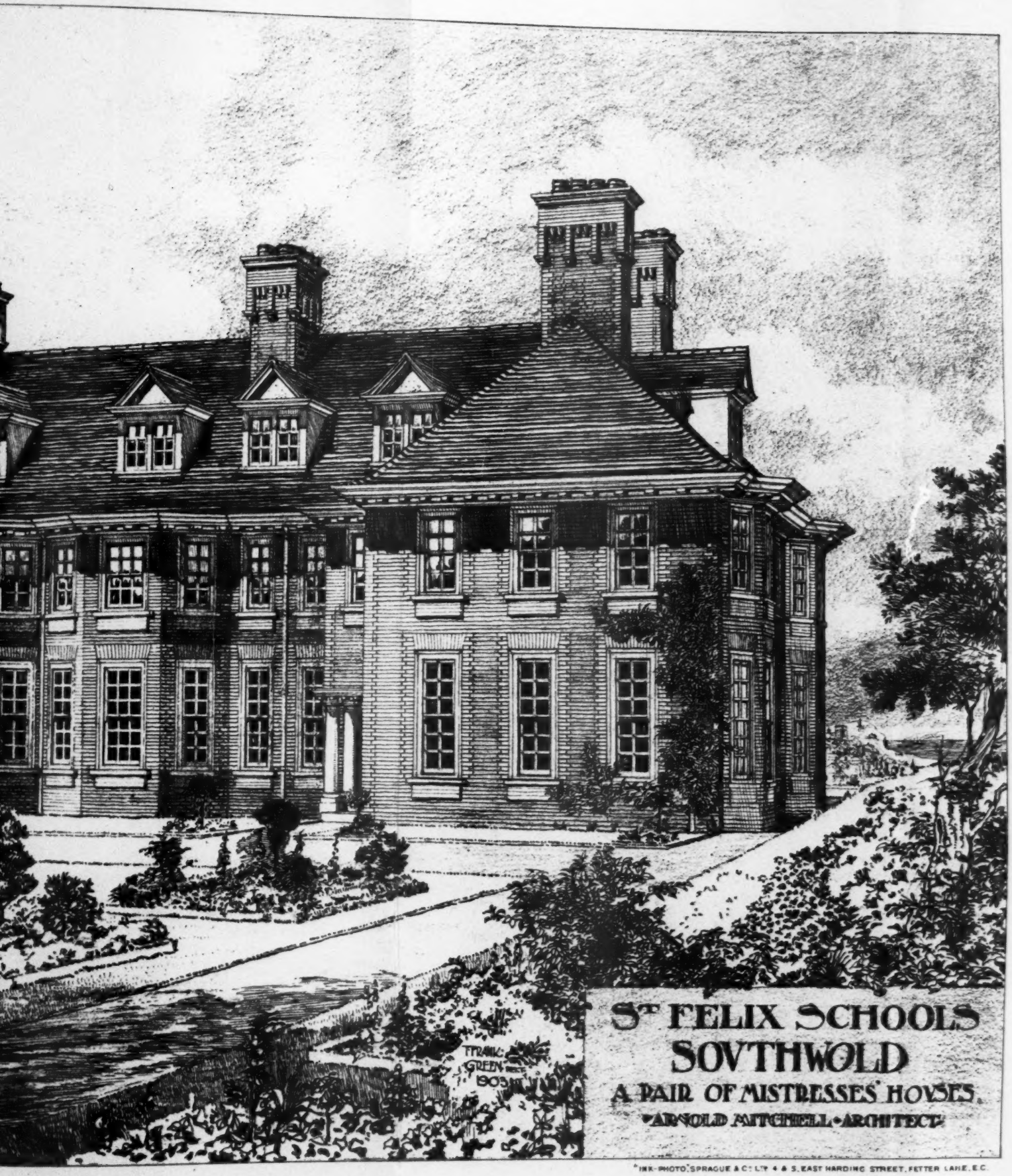


INK-PHOTO SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

STOCKPORT TOWN HALL COMPETITION: THIRD PREMIATED DESIGN.—By Mr. H. T. Hare, F.R.I.B.A.

PLANS.

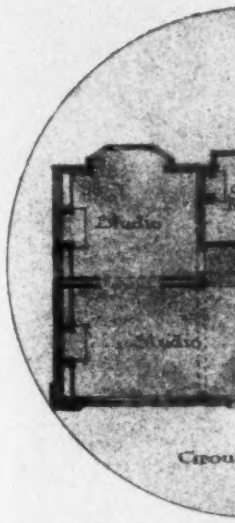


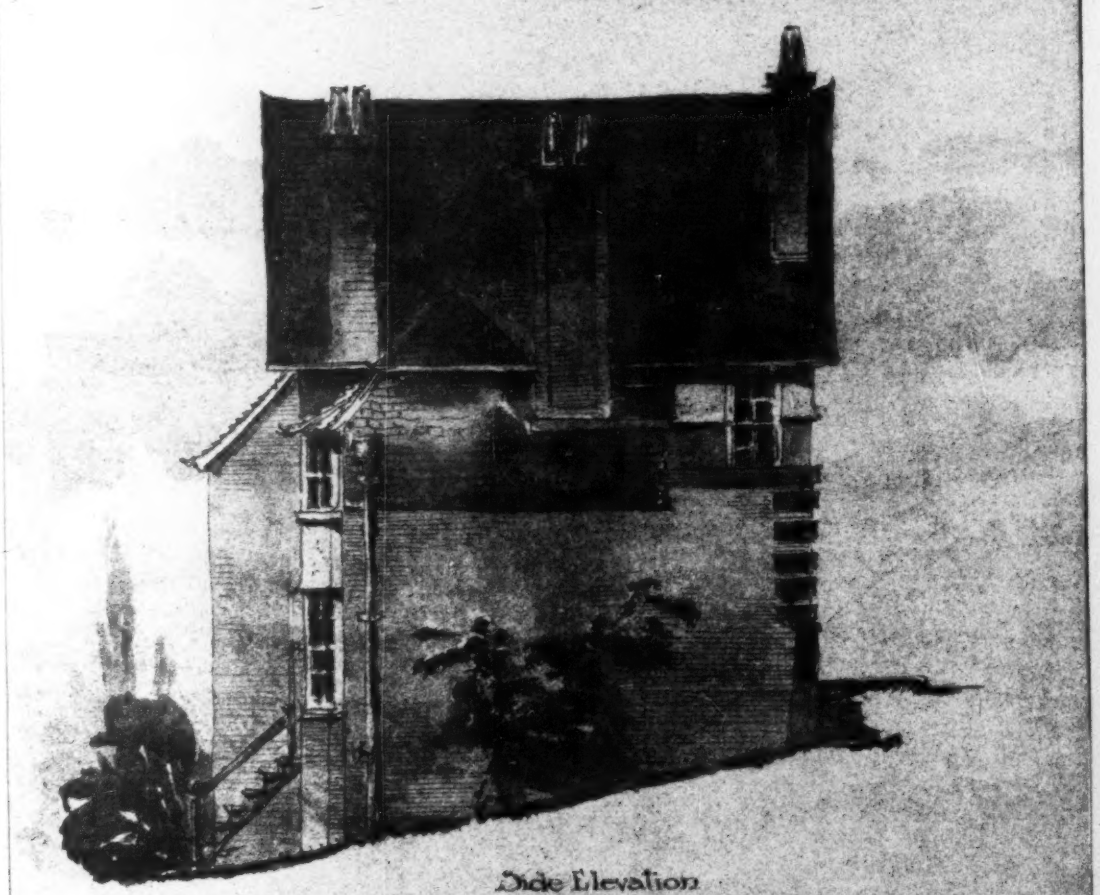


ST FELIX SCHOOLS
SOUTHWOLD
A PAIR OF MISTRESSES' HOUSES.
ARNOLD MITCHELL · ARCHITECT.

PHOTO-INK SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

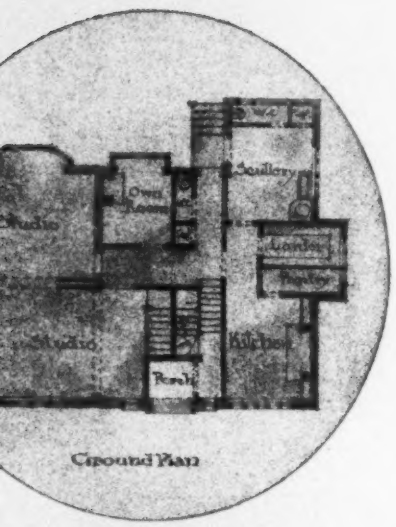
Front Elevation





Side Elevation

AN ARTIST'S COTTAGE, MALVE



Ground Plan

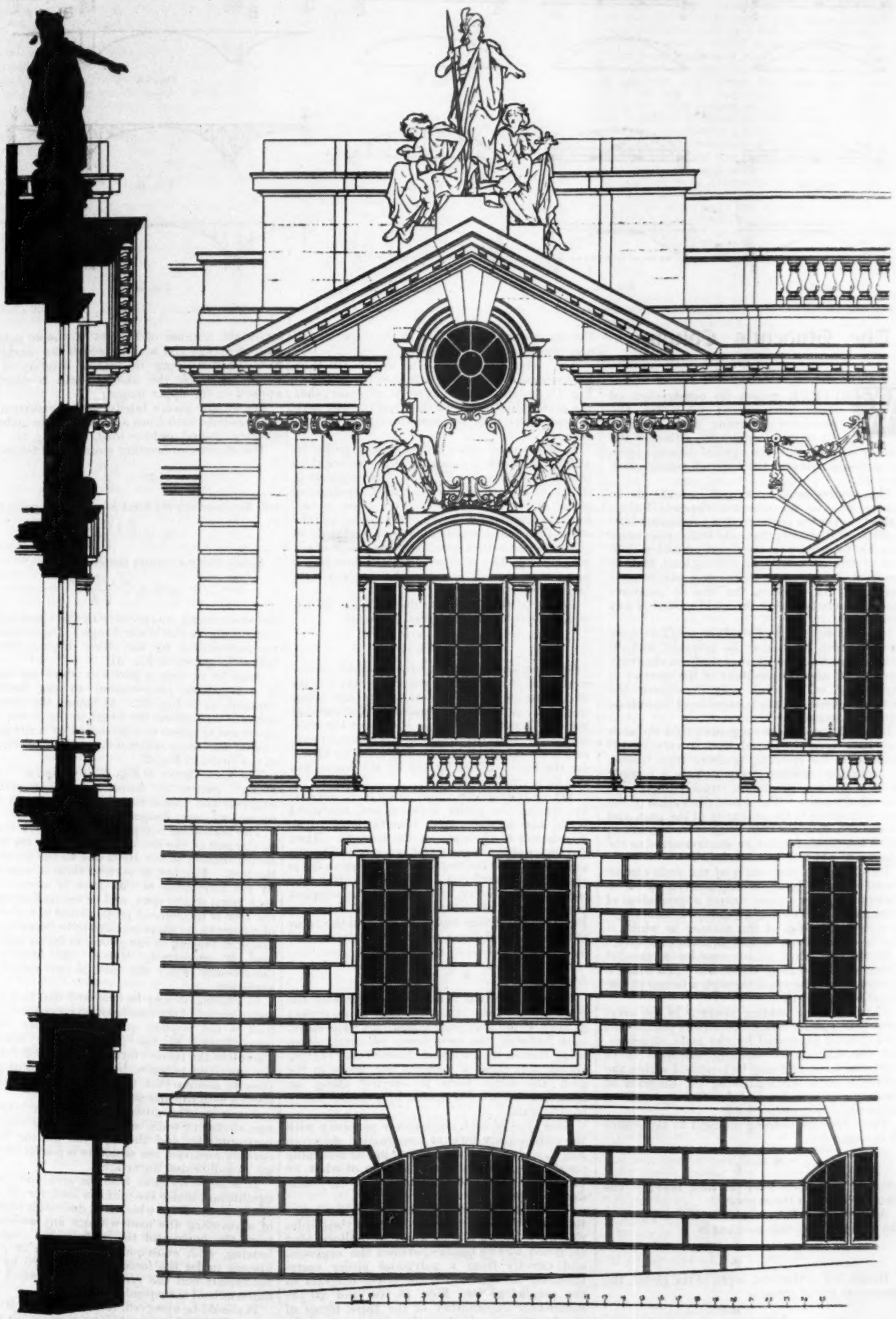
Artist's Cottage
Malvern.

Side Elevation

Back Elevation

"INK-PHOTO" SPRAGUE & Co LTD 4 & 5 EASY HARDING STREET FETTER LANE, E.C.

, MALVERN.—Mr. W A. Pite, F.R.I.B.A., Architect.



Stockport Town Hall: Third Premiated Design.

Detail Elevation.

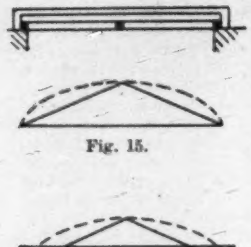


Fig. 15.

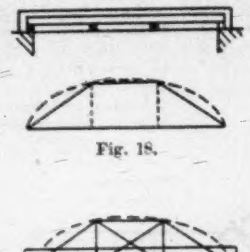


Fig. 18.

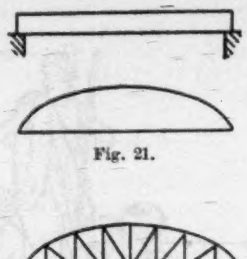


Fig. 21.

Fig. 24.

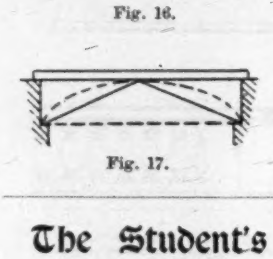


Fig. 16.

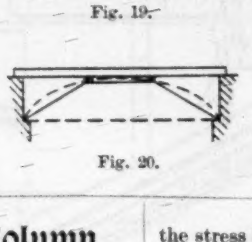


Fig. 19.

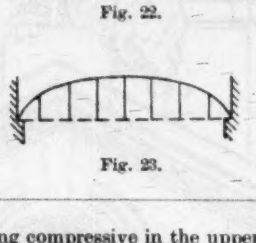


Fig. 22.

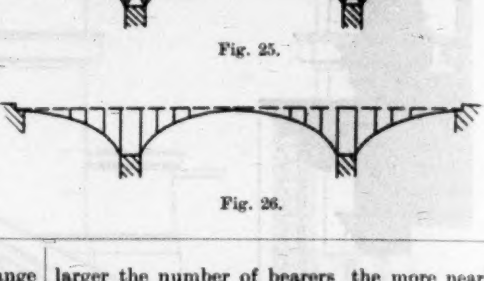


Fig. 25.

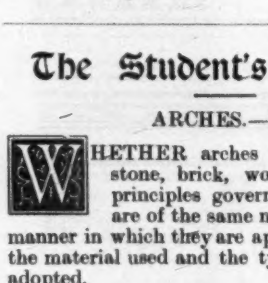


Fig. 17.

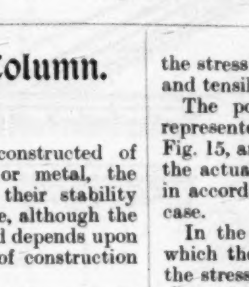


Fig. 20.

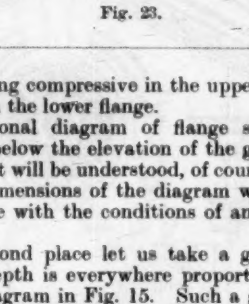


Fig. 23.

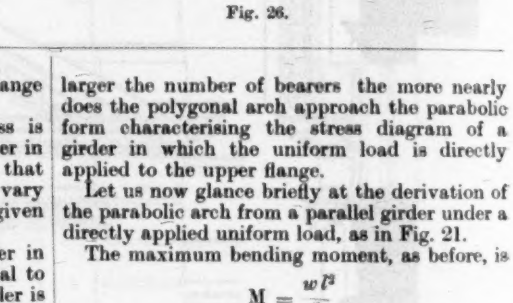


Fig. 26.

The Student's Column.

ARCHES.—III.

WHETHER arches be constructed of stone, brick, wood, or metal, the principles governing their stability are of the same nature, although the manner in which they are applied depends upon the material used and the type of construction adopted.

The masonry arch, built up of separate blocks having little or no cohesion, depends for its stability upon the presence of a permanent load so disposed that comparatively little importance attaches to changes in the direction and magnitude of stresses caused by a moving load, and the resultant of the stresses must never pass outside any joint. In practice, the line of pressures should always be within the middle third of any joint.

In a stiff arched rib of steel the conditions are very different, for it may be assumed without serious error that the rib is of uniform elasticity throughout, and the resultant of the stresses at any section of the arch may lie outside the section, because the rib is capable of sustaining bending moment.

In Art. I. we made a suggestion that the arch may have been developed from a very simple contrivance for resisting pressure from above, by arranging separate stones in such a manner as to make the dominant stress compression instead of tension. The *actual* derivation of the arch is involved in the obscurity of the past, and no one can do more than conjecture the era in which this form of structure was conceived or the manner in which it was developed.

The *theoretical* derivation of the arch can be traced very readily, and it may assist some of our readers to obtain a more correct appreciation of what an arch really is if we devote a little space to a demonstration of the manner in which it may be derived from various forms of the beam.

In the first place let us consider a parallel girder, supported at each end, and upon which a uniform load is imposed through a bearer at the centre, as in Fig. 15.

The maximum bending moment is the same value as in a girder under a uniformly distributed load directly supported by the main structure, but the diagram of bending moments is of polygonal form, and may be inscribed within the parabolic curve distinguishing the diagram of bending moments for a girder directly under a uniformly distinguished load.

The maximum bending moment at the centre of the span is

$$M = \frac{w l^2}{8}$$

where w = uniform load per foot, and l = the distance between the supports.

At any other distance x from one support of the girder the bending moment is

$$M_x = \frac{w x (l-x)}{2}$$

Hence, if d = the total depth of the girder, the maximum flange stress is

$$\pm S = \frac{w l^2}{8 d}$$

and at any point at the distance x from one support of the girder the stress will be

$$\pm S = \frac{w x (l-x)}{2 d}$$

the stress being compressive in the upper flange and tensile in the lower flange.

The polygonal diagram of flange stress is represented below the elevation of the girder in Fig. 15, and it will be understood, of course, that the actual dimensions of the diagram will vary in accordance with the conditions of any given case.

In the second place let us take a girder in which the depth is everywhere proportional to the stress diagram in Fig. 15. Such a girder is shown in Fig. 16, which illustrates a polygonal girder or truss. In this case the stress is uniform throughout the length of the girder, and the stress diagram is represented by a rectangle of the same size as that forming the elevation of the girder in Fig. 15. The principal members are an upper compression member of polygonal form and a horizontal tie.

Let D = the maximum depth of the girder, and, for the horizontal stress, we have

$$\pm S = \frac{w l^2}{8 D}$$

The compression of the upper member is due to the pull of the tie, and, conversely, the tension of the tie is due to the thrust of the upper member. A little consideration will show that the only function of the tie is to take the horizontal thrust of the upper member at each end, and if we substitute some other force, or forces, for the force excited by the tie the frame will still be in equilibrium.

Let us assume this substitution to be effected by placing the girder between two abutment walls, and at the same time the load to be transferred to the apex of the triangle. Then the thrust of the upper member is received by the abutments, and the tie, having no work to do, is absolutely superfluous. By disconnecting and removing the tie we have at once the simplest possible form of polygonal arch, as shown in Fig. 17. No change has taken place in the value of the horizontal stress, which is still represented by the equation

$$\pm S = \frac{w l^2}{8 D}$$

No consideration is needed to show that the equilibrium of the structure must be as perfect as that of the polygonal girder, the only difference between the two forms of construction being that in the girder one force of the resisting couple acts along a material bar, while in the arch the same force is exerted along an imaginary member indicated by a dotted line in the diagram.

This type of arch corresponds generally with the rudimentary form of construction shown in Fig. 2, p. 18, and the foregoing line of reasoning constitutes a scientific explanation of what we previously suggested may have been the "first dream of an arch."

The next stage in advance is to be traced in the derivation of a polygonal arch of three sides primarily from a girder, where the uniform load is carried by two bearers between the supports, and directly from a polygonal girder corresponding in figure with the stress diagram of the parallel girder. Figs. 18, 19, and 20 are sufficiently explanatory of the three forms of construction involved in this derivation of the arch, the final form here being seen to agree with that indicated in Fig. 3, p. 18.

It is unnecessary to refer in detail to further development of the polygonal arch by increase in the number of intermediate bearers. The larger the number of bearers the more nearly does the polygonal arch approach the parabolic form characterising the stress diagram of a girder in which the uniform load is directly applied to the upper flange.

Let us now glance briefly at the derivation of the parabolic arch from a parallel girder under a directly applied uniform load, as in Fig. 21.

The maximum bending moment, as before, is

$$M = \frac{w l^2}{8}$$

and the bending moment at any other point x is

$$M_x = \frac{w x (l-x)}{2}$$

Hence the maximum flange stress is

$$\pm S = \frac{w x (l-x)}{2 d}$$

the stress being compressive in the upper flange and tensile in the lower flange. These stresses are represented by the stress diagram drawn below the girder in Fig. 21.

Next let us take a girder in which the depth is everywhere proportional to the bending moment, as in Fig. 22. As before, the stress is uniform throughout the length of the girder, and the stress diagram is represented by a rectangle having the same dimensions as front elevation of the girder in Fig. 21.

The form shown in Fig. 22 is that of a "bow-string" girder, the name of which accurately suggests the character of the stresses in the upper and lower flanges.

The horizontal compression of the bow is due to the pull of the tie, and, conversely, the horizontal tension of the tie is due to the thrust of the bow. Further, as vertical shear is measured by the inclination of the curve of moments at each point in the span, and as the inclination of the bow is throughout proportional to the curve of moments, no shear remains to be borne by the diagonal bracing of the girder, so far as uniform load is concerned. Hence, the bracing is unnecessary when the load is not subject to variation.

In passing, it may be observed that in a bow-string girder of the construction represented, the load is not applied quite continuously, being concentrated at the joints of the bracing. Therefore the correct form for the bow is that of the inscribed polygon, but for our present purpose we assume that the parabolic curve corresponds with the manner of loading.

Assuming the girder to be placed between two abutment walls, as in Fig. 23, and both the horizontal tie and the diagonal bracing to be entirely removed, the structure is converted into an "equilibrated linear arch."

It is perfectly clear that the arch must be in equilibrium under the uniform load, for the bow of the girder from which it is derived is capable of supporting the load without any assistance from the horizontal tie, or from the diagonal bracing, and, consequently, must be in equilibrium under the forces communicated by the abutments and the vertical rods by which the uniform load is suspended.

It should be observed, further, that the arch is in equilibrium because its form corresponds with the curve of the bending moments for the uniform load, and that similar results may be obtained with any specified load by adapting the form of the arch so that it may correspond with the curve of bending moments for the load.

In considering an arch as a development of the parabolic girder, we must remember that the vertical forces are in no way affected, and that the bending moment still has to be resisted. The resisting couple, however, does not consist of two opposite and equal stresses, but of the horizontal stress of the arch and the horizontal force acting along a purely geometrical line between the two ends of the arch.

The same results are obtained when the uniform load is imposed from above, as in the case of a masonry arch.

We will now proceed a stage further and trace the derivation of the arch from the cantilever. This inquiry will also serve the useful purpose of making clear the difference between cantilever and arched forms of construction.

In Fig. 24 we have two parallel girders held down at the abutments A A' and supported by the piers B B' respectively. The girders are assumed to be separated by a small space at the centre. Thus each projecting portion is a cantilever, counterbalanced partly by the weight of the supported portion, and partly by the downward force exerted at the anchorage.

Assuming the load to be uniformly distributed, as before, the stress diagram for the two cantilevers will be a parabolic curve as shown in the figure, the stress varying from zero at the extreme end of each cantilever to the maximum value at the piers:

$$\mp S = \frac{w l^2}{8 d}$$

the stress being tensile in the upper flange and compressive in the lower flange.

In Fig. 25 we have a pair of parabolic cantilevers nearly meeting at the centre of the span between two piers, the outline of each cantilever corresponding exactly with the stress diagram of each parallel cantilever shown in Fig. 24. Consequently, as the depth of each cantilever is proportional to the bending moment, the horizontal stress in each flange must be uniform, and the stress diagram will be a rectangle corresponding in size with that which represents the elevation of the parallel cantilever.

Each cantilever, being supported by the pier and anchored at the abutment, is in a perfectly stable condition and receives no support from the other cantilever. The profile of a bridge designed in this manner may give the appearance of an arched structure, and there may be nothing to show the casual and uninitiated observer that the centre span is not a parabolic arch, but, as we have already seen, it is nothing of the kind. The straight member along the top of the structure acts simply as a tie between the anchored end and the free end of each cantilever, and being disconnected at the centre there can be no arching action.

It is perfectly easy to convert the pair of cantilevers into one complete arch and two semi-arch spans without making any very noticeable alteration in the general appearance of the structure as a whole. All we have to do is to provide a solid abutment at each end, and to bring the projecting inner ends into contact, as shown in Fig. 26. Then the horizontal compressive force afforded by the abutments takes the place of the force exerted by the ties, and the latter, having no work to do, may be removed. Further, as the form of the arch corresponds with the curve of moments for the uniform load there is no necessity for the diagonal bracing unless the load is variable.

But the force exerted by the abutments does something more, for it acts continuously from one end of the structure to the other, and it is evident that the system of arches may be extended to any desired extent, providing the construction at the abutments and at the intermediate piers is suitable for resisting the thrust of the arches. The opposite thrusts at each pier will balance each other, so that the only load to be carried by the piers will be vertical, but the entire horizontal compressive force must be furnished by the reaction of the abutments at the ends of the system.

The explanation and the diagrams here given should make sufficiently clear the distinction between a series of cantilevers and a series of arches, but it is not quite so easy to detect the difference where actual structures are concerned. The roadway running along the top of the separated cantilevers always looks as if it were continuous when viewed from a short distance, although it does not connect the ties in such a manner as to convert any two adjacent members into an arch, and the roadway running along the top of a series of arches may in outward appearance very much resemble the ties used in cantilever construction. In fact, the auxiliary fittings of the two forms of structure frequently have the effect of masking the essential character of the construction, but this can be determined in any given case by examination of the drawings, or by close inspection of the structure itself.

BOOKS RECEIVED.

LOCKWOOD'S BUILDER'S AND CONTRACTOR'S PRICE BOOK, 1904. (Crosby Lockwood and Son. 4s.)

ST. PATRICK'S CATHEDRAL, DUBLIN. By T. H Bernard, D.D., Dean of St. Patrick's. (Geo. Bell and Sons.)

STRENGTH AND ELASTICITY OF STRUCTURAL MEMBERS. By R. J. Woods, M.Inst.C.E. (Edward Arnold. 10s. 6d.)

PROCEEDINGS OF THE ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS: 1902-1903. Edited by Thomas Cole, A.M.Inst.C.E. (E. and F. N. Spon. 21s.)

Correspondence.

ACTON TOWN HALL COMPETITION.

SIR,—With reference to your remarks upon the selected design for Acton Town Hall and Municipal Buildings, you say you regret "that no report accompanied the assessor's award which would have thrown light upon the merits of the premiated scheme." I do not know whether this is so or not, though my impression is that one was submitted, but, however that may be, my own report and description was available, and attached to the drawings whilst on exhibition, and I think it would only have been fair, considering your adverse criticism, had you published the same; it would, at least, have explained my ideas and given my reasons (however foolish they may have been) for doing some of the "strange" and "curious" things you complain of.

It is not my intention to enter into a detailed explanation, or to attempt to justify the arrangement of my scheme; it is sufficient for me to know that the assessor, a past President of the Royal Institute of British Architects, by whom he was nominated, and a gentleman of undisputed experience and position in the profession, and, moreover, a total stranger to me, has, after a very careful study of the drawings, arrived at the conclusion that my design is the most suitable of those submitted. Further than this, the Acton Council (to whom I am also a perfect stranger, and amongst whom, I understand, are two architects, both members of the Royal Institute, and also two quantity surveyors) have, after carefully examining all the designs themselves, unanimously arrived at the same conclusion. Under these circumstances, I am egotistical enough to think, in spite of your remarks, that my design cannot be quite so bad as you state, and must have some good points, even though you failed to find them. The unanimous adoption of a competitive design for a large and important block of buildings by a body of gentlemen who are all thoroughly well acquainted with the requirements of the district, is, I daresay you will agree, a very rare occurrence, and, I venture to think, is, to any open-minded person, a very convincing proof of the correctness of the assessor's award.

I take this opportunity of complaining generally of the light and careless manner in which architects' competitive designs have, particularly of late, been criticised in the Press, more especially the winning design, by those who have not made, or even had the opportunity of making, the close study and independent consideration of each design, and of all the many points involved in it, which is so absolutely necessary before an opinion of any value whatever can possibly be formed. It is unreasonable that a design which may have taken its author many weeks, or even months, to think out, should be literally pulled to pieces by one who has probably, at best, merely glanced at the "conditions" and plan of site before starting, and as likely as not does not think it worth his while, to even read the report.

WILLIAM G. HUNT.

*** We are, of course, happy to publish Mr. Hunt's letter, but he is quite mistaken if he thinks we are alone in our opinion. As to the accusation of "light and careless" criticism, we may leave that, as far as we are concerned, to the general judgment of our readers. We fear we are still in the mind that our opinion on the subject is worth more than that of the combined wisdom of the Acton Council, or than that of the assessor in this instance.—ED.

WHAT IS A BUILDING?

SIR,—The District Surveyor for South Fulham claims that a small open shed, which we have put up with wrought iron supports and galvanised iron roof, is a building, and that a portable, sectional stand consisting of wooden uprights and diagonals which we brought from Earl's Court Exhibition, where we used it for our exhibits, and which we have now simply stood up in our yard and put some corrugated iron sheets on top, and screwed them down, to prevent the wind blowing them away, also constitutes a building.

Now, we are in search of a definition of "a building," because the Building Act is silent upon this point, and seems to leave the question of what is to determine a building to the very various interpretations of their officers, and the inconvenience and expense of this uncertainty is meantime thrown upon owners.

Perhaps some of your readers who are well versed in such matters can supply us with a definition as to what really constitutes a building.

J. H. HEATHMAN & Co.

*** Various legal decisions which have been given leave no doubt that any structure which is put up in a permanent manner, and intended to retain its position permanently, is a "building" within the intent and purpose of the Act. According to the general spirit of these decisions the District Surveyor is right.—ED.

DELAY IN COMPLETING STREET PAVING.

SIR,—I beg to call your attention to one of the, so called, advantages of municipal trading.

The Borough of Fulham is now manufacturing a patent stone for street paving purposes from their "destructor" residue. I am interested in 28 houses in Sedlescombe-road, Fulham. The road-making and paving charges in respect of these houses (475*l.*) were paid in advance early in July. The works were not commenced until the end of October. In reply to an enquiry, from the owner, as to when the paving would be completed, the Borough Engineer and Surveyor wrote on December 22 last:

> I have given instructions that the remainder of the footpath which has not been paved shall be covered with ashes and made satisfactory until such time as the flags (which are already made, but need drying and hardening) can be laid. You may be sure that there will be no delay in carrying out this work at the earliest possible moment. In fact, immediately the flags are fit to leave the works they will do so.

Had the paving contract been placed with a contractor the work would long since have been completed, or the Borough Council would doubtless have enforced penalties.

The owner has had the last six of these houses finished and ready for occupation since September last, but has been quite unable to let them on account of the condition of the roads and pavements, and is, consequently, suffering a heavy loss, the rents amounting to 21*l.* per month.

H. S. E. VAN DER PANT.

EASTER HOLIDAYS AND THE BUILDING TRADES.

SIR,—I do not hesitate to answer the first sentence of your correspondent's letter in the affirmative. Easter holidays are, in my opinion, a decided nuisance to all who are engaged in the building trades.

I would venture to assert that nearly, if not all, employers of labour in these trades would gladly welcome the abolition of these holidays for more reasons than one. It means that work is at a standstill from Thursday evening (in a great many cases from midday) until the following Tuesday morning. And then, how many of our large contractors (and small ones too) expect to see the full number of men on the books in their places when the whistle is blown at six o'clock on Tuesday morning? Very often only about one-half turn up the first day after the holidays; on Wednesday perhaps about 75 per cent. are on the job. Thursday may see most of them there (this depends to a great extent as to how much time they have made during the previous week or two); and are the majority of the men who do put in an appearance any time during the week very "fit"? I will leave the answer to your experienced readers. My own experience (about 30 years) is that the Easter holidays unnecessarily disorganise work for at least a week in a busy time of the year, and I heartily endorse all that your correspondent has written.

R. BRICKWOOD.

WATER SUPPLY OF NARBOROUGH, LEICESTER.

SIR,—Where ignorance is bliss, 'tis folly to be wise. I am staying in the village of Narborough, adjacent to Leicester. The inhabitants here derive their drinking water from

shallow wells, and think (and boast) they have a very fine quality of water. But, seeing that the village pump is in the roadway and the well is in such a position that the surface water from the road must go into it, and that it is opposite a slaughter-house, and is surrounded by earth closets and, possibly, cesspools, and, to cap all, the densely-packed graveyard is 15 ft. above and about 50 ft. away, I began to have my doubts about it, especially as the water contained, after boiling, a large quantity of thick, grey sediment, like cigar ash.

So I sent a sample for analysis to the Medical Officer of Health, who reported it to be "heavily polluted with animal organic matter, and unfit for drinking."

I append the analysis. And now the villagers are afraid that a good supply will be laid on, for which they will have to pay; rather than do which, they prefer to drink the remains of their ancestors. From what I have seen of the surrounding villages, the conditions are the same.

J. D. WALKER.

COPY OF ANALYSIS.

Colour: Rather turbid.
Reaction: Alkaline.
Odour at 120° F.: Perceptible.
Chlorine: 5·9 parts per 100,000.
Free ammonia: 0·003 parts per 100,000.
Albumenoid ammonia: 0·032 parts per 100,000.
Nitrogen (from nitrates and nitrites): Very excessive.
Nitrites: Present.
Opinion.—The sample is contaminated with animal organic matter, and unfit for drinking.
(Signed) J. E. O'CONNOR, M.S.D., P.H. Camb., Medical Officer of Health.

OBITUARY.

M. GÉRÔME.—M. Jean Louis Gérôme, the eminent French painter and (latterly) sculptor, died on the 11th inst. of apoplexy. He was born at Vesoul on May 11, 1824, and therefore was 80 at the time of his death, but was still a prominent and energetic member of the Paris social and artistic world. Gérôme came to Paris in 1841, and entered the atelier of Delaroche, subsequently accompanying him into Italy. He exhibited, for the first time, in the Salon of 1847, a picture representing some young Greeks at a cockfight, which obtained a third medal. Among his principal works since that time may be mentioned the reception of the Siamese ambassadors by Napoléon III. (in the Versailles Museum); "The Age of Augustus"; "The Nativity"; "Phryne before the Areopagite Council"; "The Plague at Marseilles"; "St. Martin dividing his Cloak" (in the Church of St. Nicholas des Champs); "Son Eminence Grise"; "The Slave Merchant," a remarkable work, exhibited many years ago at the Royal Academy; "Le Premier Baiser du Soleil"; "La Soil"; "The Sword Dance"; and many others which we have not space to mention. Among his sculptures were the remarkable "Bellona," in ivory, marble, and bronze (also exhibited at the Royal Academy); a "Phryne"; a remarkable work in last year's Salon, a tinted statue of a nude female juggler playing with balls; and various admirable equestrian statuettes, of Napoléon in Egypt, Tamerlane, Frederick the Great, etc. He also modelled the figure of "La Douleur," which surmounts the monument to his son in the cemetery at Montmartre. Napoléon's campaign in Egypt interested him much, and one of his most celebrated pictures is that of Napoléon contemplating the Sphinx. Gérôme was a member of the Academie des Beaux-Arts, and Grand Officier of the Legion of Honour. He was appointed in 1867 Professor at the Ecole des Beaux-Arts. He was a very important figure in Paris society, as well as in French art. He was one of a group of French artists of the last century, of whom Decamps and Vernet were earlier members, who gave one the impression of combining the artistic and the military character. The portraits of Gérôme always suggest the personality of a soldier rather than of an artist.

MR. SAXON SNELL.—We greatly regret to announce the death, on last Sunday morning, at his residence, Lancaster Lodge, Amersham-road, Putney, after a short illness, of Mr. Henry Saxon Snell, in his 73rd year. During the period 1878-91 Mr. Saxon Snell practised at No. 22, Southampton-buildings, W.C., in co-partnership with his sons, Mr. Harry Saxon Snell—who retired from the firm after a few years—and Mr. Alfred Saxon Snell, F.R.I.B.A., under the style of Messrs. H. Saxon Snell and Son. The partnership was dissolved in 1891, when he resumed independent practice during a period of five years, and then relinquished the active pursuit of his profession. He, however, continued to retain a keen interest in all matters relating to the planning of hospitals and their ventilation, and only a week before his death was much occupied with his scheme for solving the problem of hospital sites in London by building in the public parks. Mr. Saxon Snell was elected a Fellow of the Royal Institute of British Architects in 1871, and became a member of the Architectural Association in 1850, being one of its two oldest members. He was the author of "Charitable and Parochial Institutions," and, in conjunction with the late Dr. F. J. Mouatt, of "Hospital Construction and Management," as well as of several papers and pamphlets upon kindred subjects. He was a member of the Council of the Sanitary Institute. In last November he made a liberal donation to the New Premises Fund of the Architectural Association. Mr. Saxon Snell was the son of Mr. George Blagrave Snell, of London; he entered the office of Sir James Pennethorne, and became assistant to Sir Joseph Paxton and of Sir William Tite; he was also, about that time, chief draughtsman in the Science and Art Department, South Kensington. In 1851 he gained the Royal Academy Silver Medal for his measured drawings of the steeple of St. Mary-le-Bow, Cheapside. In, or about, 1866 he obtained his first important appointment as architect to the St. Marylebone Board of Guardians, and carried out the temporary casual wards, which formed the precursor of many buildings subsequently built by him for that Board.

Of Mr. Saxon Snell's principal architectural work, we may mention the following instances, denoting by an asterisk those of which illustrations and plans have been published in *The Builder*: The Boys' School at Wandsworth-common, for the Commissioners of the Royal Patriotic Fund, for which he was, with four other architects, nominated to compete (June 22, 1872*); the Metropolitan Convalescent Home for Children, at Kingston-hill, Norbiton (July 17, 1875*); the Parish Mortuary, Fletcher's-row, Clerkenwell (July 22, 1876*); the Holborn Union Infirmary, Highgate-hill (March 1, 1879*); St. Olave's, Tooley-street, Union Infirmary, opened in 1879; St. George's, Hanover-square, Union Infirmary, 1876; the permanent Casual Wards, Marylebone Workhouse, 1878; the Marylebone (old) Swimming Baths, Marylebone-road, 1874; the St. Marylebone Dispensaries and Relief-stations in Little Union-place and Earl-street, Lisson-grove; and the Infirm Wards and Administrative Offices for St. Luke's Workhouse, in City-road and Shepherdess-walk, as part of the scheme for the reconstruction of the Workhouse buildings (January 11, 1879*). About thirty-five years ago Mr. Saxon Snell began the re-construction of the Marylebone Workhouse; the first portion erected from his plans and designs comprised the first new "chronic" ward blocks, with the laundry and the Guardians' offices on the east portion of the site in Northumberland-street, Marylebone-road (see also *infra*). In 1887 his designs were adopted for a conversion of the front main building of the Aberdeen Royal Infirmary for administrative and clinical purposes only, and for the removal of all the patients into new pavilions at the rear; the plans, together with an entire re-arrangement of the exterior, but leaving the exterior, of the front and main building, were carried out under his firm's and Messrs. W. and J. Smith and Kelly, the City Architects', superintendence (June 11, 1887*). He was architect, jointly with Mr. Alfred Williams, of the Kensington Infirmary, and assisted the late Captain Fowke, R.E., on the Dublin Exhibition. His plans and designs were selected for the proposed Kensington District Schools at Ashford, in 1879, but the dissolution of the Board caused the abandonment of the project. The firm of Messrs. H. Saxon Snell and Son were employed as architects for the extensions and improvements of the Hendon Union Workhouse and Infirmary; the additions to St. Olave's, Tooley-street, Workhouse; the Royal Victoria Hospital at Montreal; and the Forres Hospital, N.B.; for the Holborn Union—the Workhouse in Merton-lane, Mitcham, for 1,000 able-bodied paupers, with quarters for married couples, workshops and gas-works, re-drainage, the Schools at Mitcham, numerous alterations, etc.; there, as he stated in a letter printed in our columns on November 6, 1886, he first, as he believed, adopted the block system in its entirety with open connecting corridors (October 23, 1886*); alterations, with new offices, relief-station, and dispensary, Highgate Infirmary for the Holborn Union; additional provision for 500 beds for the St. Luke's Workhouse in City-road (cited above); new buildings, with workhouse and casual ward blocks at Wallis's-yard, Pimlico, for the St. George's, Hanover-square, Board of Guardians (May 24, 1884*); administrative offices, the Guardians' board-room, relief-stations, receiving-wards, children's wards, married couples' quarters, dispensary, etc., in Fulham Palace-road, for the Fulham Union (February 2, 1889*); the Hospital for the Sick Poor, and Nurses' Home in Rackham-street, Ladbroke Grove-road, W., for the St. Marylebone Guardians (June 25, 1881*); the Out-patients' Department and Nurses' Home and Dispensary, Victoria Hospital for Children, in Tite-street and Queen's-road, Chelsea (June 27, 1885*); the north-west wing and Out-patients' Department, Hull Royal Infirmary (November 7, 1885*); the Medical Relief and Out-patients' Relief Departments, with Guardians' offices, at the corner of Clerkenwell-road and Red Lion-street, for the Holborn Union (December 12, 1885*); the St. Marylebone Mortuary and Coroner's Court, in Paddington-street, N.W. (February 2, 1889*); a continuation of the works for the re-building of old St. Marylebone Workhouse, on the east and and southern parts of the site, embracing the new "able-bodied" wards, women's workroom, the quarters for married couples, and the laundry overlooking the burial-ground in Paddington-street, 1887-8; and some new buildings (1891-2) at the St. Luke's Workhouse in City-road, for the Holborn Union, in addition to those we have already mentioned.

MR. WILLIAM FOSTER.—The death took place on the 11th inst., at his residence, Priestthorpe-road, Bingley, of Mr. William Foster, at the age of 69 years. Mr. Foster was senior partner in the firm of William Foster and Son, builders and contractors, Bingley. He was a director of the Bingley Building Society and the Bingley Sanitary Tube and Lime Company.

GENERAL BUILDING NEWS.

LIBERAL CLUB, TUNSTALL.—It has been decided to erect a new Liberal Club for Tunstall on a plot of land opposite the recreation ground in Station-road. Mr. A. R. Wood, architect, of Tunstall and Burslem, has planned and designed a building, the estimated cost of which, including the land, will be about 2,500*l.*

BUSINESS PREMISES, BELFAST.—New premises have been erected in Cromac-square by the firm of Messrs. Lennon Bros. Mr. W. J. Moore, architect, Belfast, prepared the plans and Messrs. J. and R. Thompson, contractors, Belfast, were chosen to carry out the work. The buildings have a frontage to Cromac-square of 95 ft., to Verner-street of 105 ft., and to Market-street of 105 ft. The ground floor, with the exception of the space taken up by three shops, is occupied by Messrs. Lennon, and comprises the mart, stores, banana and grape houses, offices, and machines. The empties are stored in a mezzanine floor between the ground and first floors. Stabling buildings giving accommodation for fifteen horses are on the first floor, reached by a gangway, and in close communication are placed the harness-rooms, etc. The mart has an area of 4,000 square feet, and has five entrances from Cromac-square and Verner-street. The strong-room leads directly out of the public office. The banana-rooms are formed of non-conducting walls, so that the temperature can be regulated. These rooms are heated on the high-pressure system, as also are the offices, and are regulated so that the different rooms may be kept at different temperatures. The grape-rooms are adjoining the banana-rooms, and are of similar construction. The heating and wrought-iron work were executed by Messrs. Musgrave and Co.; the plumbing, gasfitting, and copper work were done by Messrs. Baxter and Co.; and the electric lighting by Mr. William Little.

SCOTTISH PROVIDENT INSTITUTION, BRISTOL.—The new building which has just been erected on the corner of St. Stephen-street and Clare-street, for the Bristol branch of the Scottish Provident Institution, was occupied on the 21st ult. The ground floor will be occupied by the Scottish Provident Institution, and the rest of the building will be let off in offices. The building is treated in the Renaissance style. It has a base of Scotch red granite, but the rest of the building is in Doulting stone. The dome is of lead, with moulded ribs and panels. The architects were Messrs. Oatley and Lawrence, and Mr. R. F. Ridd was the builder. The building, which throughout is fireproof, consists of a basement, ground floor, and two upper floors, and the interior fittings are of polished teak. There is a marble floor to the public space on the ground floor occupied by the Scottish Provident Institution, and the other parts of the floor are composed of wood blocks. The staircase which leads to the upper floors has a marble dado.

THEATRE, GRIMSBY.—At the last meeting of the Grimsby Corporation Public Buildings Inspection Committee, the only business was to consider the proposed plans for a new Palace Theatre of Varieties in Victoria-street, on the site of the old theatre. The Borough Surveyor (Mr. Whyatt) explained that the plans met everything that was desired by the committee. The pit, which previously was below the street level, was now level with it. There was a grand staircase up to the dress circle, and an exit from the buffet, whilst there were two separate staircases to the gallery, as well as other emergency exits. — The plans were adopted.

PAVILION THEATRE, NEWCASTLE.—A new theatre, the Pavilion, has been erected in Westgate-road, Newcastle-on-Tyne. The building, which has been designed by Messrs Wylson and Long, of London, was commenced in the early part of this year. The contractors were Messrs. Jacob Parkinson and Sons, Ltd., of Newcastle. The front of the building, which has been executed in stone and red brick, is some 70 ft. in width, and divided into three bays, separated by broad pilasters, finished with semi-circular arches. The following is a list of the firms engaged in the building: Iron construction, marble work, &c., Messrs. J. Tweddle and Co., Newcastle; electric lighting, Messrs. W. Brown and Co., Blackpool; decorations, Messrs. F. De Jong and Co., London.

TOWN HALL, SUTTON COLDFIELD.—At Sutton Coldfield, on the 29th ult., an inquiry was held at the Council House by Mr. W. A. Ducat, one of the inspectors to the Local Government Board, into an application by the Sutton Corporation for sanction to borrow the sum of 4,086*l.*, and to appropriate the proceeds of the sale (4,050*l.*) of the old Town Hall and offices in order to defray the cost of the erection of a new Town Hall, and also for sanction for a loan of 1,920*l.* for the erecting of a fire engine station. The Town Clerk (Mr. V. Holbeche) explained the steps which had led the Corporation to undertake the erection of a new Town Hall, these including the proposed sale of the Sutton Sanatorium, now forming the existing Council House, which was acquired by the Corporation in 1902 at a cost of 9,000*l.*, and adapted to its present uses at the outlay of another 1,000*l.* Mr. Mason, of the firm of Messrs. Mason and Edison, architects, London, submitted plans of the new Town Hall, which provide immediate accommodation for 650 persons, and would be equipped with reception rooms, retiring rooms, platform, and kitchen. The estimated cost would be 7,649*l.*

METHODIST SCHOOLS, HUCKNALL TORKARD.—New schools have been opened in connection with Trinity Church, situated in the Market-place, Hucknall Torkard. The chief entrance to the schools is by means of a roadway alongside the church, and communicates with a parlour, 31 ft. long by 21 ft. wide, capable of accommodating 120 persons. On the ground floor an infants' room is also provided, measuring 22 ft. by 21 ft., with gallery for 110 children, whilst there are three class-rooms. The assembly hall is on the first floor, access being gained by means of two staircases. This room, which is about 44 ft. by 36 ft., has a gallery on three sides, and is capable of seating 520 persons. In addition, there are three class-rooms on the east side of the hall and two on the south, whilst five more class-rooms are opened from the gallery. By throwing the ten class-rooms open to the hall the total accommodation is 734 adults. There will be two additional class-rooms on the north-east angle of the site, and altogether the class-rooms number eighteen. The heating of the whole premises is by means of hot water piping and radiators. The building has been erected by Mr. J. A. Munks, of Hucknall, from the designs of Mr. A. H. Goodall, of Nottingham.

THEATRE, GREENOCK.—A new theatre is to be erected at the corner of West Blackhall and Ker Streets, Greenock, for the Regent Property and Assets Company, Limited, from plans by Messrs. Boston, Menzies, and Morton, architects, Greenock, Mr. Alex. Cullen acting as consulting architect for the promoters. The house is a two-tier one, and is seated for 1,650 persons. The cost is estimated at between 12,000*l.* and 15,000*l.*

THEATRE, STANLEY, DURHAM.—The Theatre Royal, Stanley, has been erected at a cost of 7,000*l.*, from the designs of Mr. William Forster, architect, Stanley. The theatre includes circle, pit, and gallery. There are eight dressing-rooms on the different landings, with bar on the circle. The paintings have been executed by Mr. Phil Davis, of Lancaster, and the construction of the stage has been superintended by Mr. Fred Angus, of Glasgow. The various contracts have been carried out by the following firms:—Joiner work, Mr. T. Mordue, Dipton; plumbing, Mr T. A. Moffitt, Gateshead; slating, Mr. J. Nelson, Sunderland; decorations and painting, Mr. A. S. Arnison, Sunderland; furnishing, Messrs. Snowball and Son, Gateshead; steel construction, Messrs. Wright and Son, Hull; plastering, Messrs. J. Mule and Son, Sunderland.

NEW FLOUR MILLS, VICTORIA DOCK.—A new branch of business is about to be opened at the Royal Victoria Dock in the interests and development of the milling trade. The firms of Joseph Rank, Ltd., of Hull, and Messrs. William Vernon and Sons, of Liverpool and Birkenhead, will expend large sums, as will also another firm, upon the erection of flour mills on a site extending over several acres on the south side of the dock, which has been let to them, respectively, by the London and India Docks Company. Arrangements are to be made for the discharge of cargoes of grain directly from the ships into the mills, and for the delivery of flour into barges and railway trucks, as well as for its conveyance by road to the depôts in London.

RENOVATION OF THE TOWN HALL, JOHNSTONE.—The Town Council have settled contracts for the renovation, heating, ventilation, and other improvements, which are to cost about 1,200*l.* Mr. M'Lelland, Glasgow and Johnstone, is the architect for the work.

SCHOOL, FLEUR-DE-LIS, MONMOUTHSHIRE.—A new school was opened at Fleur-de-Lis recently. The school is designed to accommodate 370 children—210 boys and girls, and 160 infants, and is arranged on the class-room system, with marching hall for the infants, and general assembly lobby for boys and girls. Two playgrounds are provided, and there are store-rooms for each department. The school has been erected at a cost of £4,760 by Mr. John Jenkins, Newport, according to the designs of Mr. R. L. Roberts, architect, Abercarn.

WYMONDHAM ABBEY CHURCH.—The opening of the nave and south aisle of Wymondham Abbey Church, Norfolk, has just taken place. The restoration of the west tower is completed, as well as that of the nave and south aisle; but the north aisle has yet to be restored, and will be commenced at once. The late Mr. W. S. Hicks was the architect for the restoration, and the work has been carried on by the present firm of Messrs. Hicks & Charlewood, of Newcastle. Messrs. Ratee & Kett, of Cambridge, are the builders.

ISOLATION HOSPITAL, FRIMLEY, SURREY.—The Frimley Urban District Council, having made an application to the Local Government Board for sanction to a loan of 2,350*l.*, for the purposes of an isolation hospital on a site at Mytchett, the Board directed Dr. E. Petronell Manby, one of their inspectors, to hold an inquiry, which he did recently at the Council Chamber, High-street, Camberley. Mr. F. C. Uren, surveyor, explained the plans.

THE BUILDING TRADE, GRIMSBY.—The building trade, which in 1902 passed through such an extraordinary period of depression, has during the past twelve months shown a welcome revival. In 1902 the complaint was general that there was a lack of big contracts, that employment was irregular, and that the fishing dispute was responsible for this unfortunate state of things. Matters in 1903 were brighter, and all our builders record an improvement. There have been a good few contracts open to tender, some of them big ones, and in this connection it is encouraging to note that local contractors in practically all instances have been successful in securing the work. One of the biggest was the erection of the new County Police Buildings in Brighowgate, which kept a large staff of the workers busy for a considerable time. Then Lord Heneage and Mr. Grant Thorold have provided much employment by the opening up of their estates in the New Cleethorpes district. Road-making and draining have been carried out and the erection of middle-class house property is being rapidly proceeded with. "Down Docks" new smoke houses, rendered necessary by the increasing herring trade, have been constructed, while Messrs. Hewins and Goodhand have been busy pile driving and building at the dock basin for the new herring stage. Extensions to the Police Department at the Town Hall, the completion of the refuse destructor works, the underground balancing sub-station at Riby-square, and the Great Central Railway Company's extensive alterations at the dock head, the building of new bank premises and insurance offices in Victoria-street, have all kept an army of builders busy. At Cleethorpes builders have been active. The new municipal offices, the new chapel in course of erection at the corners of Tiverton and Harrington streets, and the sea wall extensions have all provided work during the year. House property is being built with startling rapidity on the outskirts of the town, new streets, with new houses, occupying sites that little more than a year ago were field and open country. There have been no disputes during the year, and employment has been good. It is gratifying to observe that this desirable state of things is likely to continue well into the New Year.—*Grimsby News.*

MIDLAND RAILWAY STATION, NOTTINGHAM.—Although the new Midland Railway Station in Nottingham is announced to be opened for traffic on Sunday, the 17th inst., it will be some eight or nine months before the whole of the work involved in the scheme is completed, and by that time the expenditure will have run well into a million sterling. In all there are to be six platforms, with nine distinct sets of metals, including independent up and down goods roads. When the new booking offices are opened on the Carrington-street bridge the present suite of buildings in Station-street will be closed, and their demolition proceeded with, whilst at the same time a new footbridge leading into Station-street will be ready for use. Further east another public footbridge is being provided, extending from Queen's-road to Station-street, and upon this subsidiary booking offices are to be erected for the convenience of passengers coming from the London-road district. Upon platforms 1—3 there will be refreshment and dining rooms, waiting rooms, signal cabins, and lavatories; and on platforms 4 and 5 the station master's office, telegraph office, and more refreshment and waiting rooms and signal cabins will be found. The main entrance to the new station is situated on Carrington-street bridge. The west front has a length of 320 ft. and a general height of 40 ft. There is a clock tower, which rises to a height of 72 ft. The cab approach to the station is reached from the bridge level by two wide entrances, and there are the same number of exits, pedestrians gaining access to the premises by means of two smaller gateways, one beneath the clock tower and one to the southern extremity of the main façade. There are also large and small entrances to this carriage annexe, which is roofed with glass, paved with Jarrah wood blocks, and provided with ornamental iron gates, from Station-street and a cab entrance out of Queen's-road. The carriage entrances have high elliptical arches, and at the sides there are rusticated attached columns of an Ionic order with head pediments over. The other archways are finished with rusticated pilasters and a cornice above. The angles of the clock tower are treated with rusticated Ionic columns, surmounted with a semi-circular dome. The interior of the cab approach, which has a width of 56½ ft., has been built of red pressed bricks, having the ornamental parts in red terra-cotta. Leading out of this carriage way there is the booking hall, 104½ ft. by 42½ ft., and this is approached by three circular-headed gateways fitted with glass screens and swing doors. On either side of the ticket office there is a corridor 25 ft. wide, which affords access to a footbridge or gangway, running at the rear of the main hall for its entire length, from which three staircases lead down to the platforms. Three hydraulic luggage lifts are also provided here. On the north side of the booking hall, approached from the corridor by a passage, a cloak-room, 117 ft. long and averaging 35 ft. wide, will be found, whilst near by there is a small inquiry office, where, too, parcels will be received, though the parcels will be principally dealt with in the large new offices erected in Station-street, and which have been already opened to the public.—*Nottingham Express.*

PROPOSED MUNICIPAL BUILDINGS AT SOUTH SHIELDS.—The South Shields Corporation officials have recently been engaged in applying tests to the ground in Ogle-terrace, on which it is proposed to erect the new municipal buildings, for the purpose of ascertaining the stability of the foundations. This has been done in consequence of the existence near at hand of a strata of sand, which proved difficult to deal with in the erection of neighbouring edifices. The result has been reported to the Municipal Buildings Committee, and it appears that the settlement has been much less serious than was feared. The area selected for the test was that upon which the tower, which will be the heaviest part of the new buildings, was intended to be placed. Its weight was estimated at 1,500 tons, and it is proposed that it shall rest on a concrete bed or base of a total area of 1,936 ft., so that the weight of the tower, distributed over this area, would be under one ton per square foot. The test applied was equal to five tons weight per square foot, and a gradual settlement took place to the extent of 11 in., but here it ceased. The committee, accompanied by Mr. Ernest E. Fetch, of London, the architect of the new buildings, inspected the site on the 7th inst. Mr. Fetch pointed out that as designed the tower would not be seen from Fowler-street, which is the main business thoroughfare leading towards it, and on his suggestion the committee decided to recommend the council to bring the building 20 ft. forward, although there was some opposition to this on the ground that as much open space as possible should be allowed in front of the buildings. It was also agreed to make a further test of the site nearer to the main road, and this work will be proceeded with without delay.—*Newcastle Journal.*

BUILDING IN SUNDERLAND.—During the past year 419 plans for buildings of all descriptions were submitted to the Building Committee of the Sunderland Corporation, and of this number 390 were approved. Ninety-nine of the approved plans were for new houses, representing 477 houses—105 one story, 45 one and a half stories, and 327 two or more stories. Among the more important buildings which have been erected, or are in course of erection, are a number of schools and places of

worship, new premises for the York City and County Bank in Fawcett-street and St. Thomas'-street; alterations to the People's Palace, High-street West; the rebuilding of the Londonderry Hotel, High-street West; and the rebuilding of The Bells Hotel, Bridge-street and West Wear-street.

ALTERATIONS, CALVINISTIC CHAPEL, HOLYWELL, FLINTSHIR.—The authorities of the Rehoboth Calvinistic Methodist Chapel at Holywell are about to carry out alterations and improvements to the building, at a cost of something like 2,500*l*. There is to be a new frontage of red Ruabon brick, with Gwespyr stone dressings, and the interior will be rearranged, and new seating accommodation, galleries, etc., provided. The architect is Mr. T. J. Williams, Liverpool.

PROPOSED EXTENSION, BRISTOL WORKHOUSE.—At a special meeting on the 8th inst. of Bristol Board of Guardians, the report of the Committee appointed to consider the accommodation for indoor poor at Eastville Workhouse, was brought up. The Committee stated that they felt strongly that any scheme should provide for the removal from the workhouses of all imbeciles and epileptics now chargeable therein, and when this was done they considered that the existing buildings at Eastville and Stapleton could, with alterations, improvements, and additions, be made suitable for all the other classes of indoor poor who are chargeable to the Guardians. The scheme they now submitted for the acceptance of the Guardians was briefly as follows: To utilise the Stapleton Workhouse, with slight alterations and improvements, for acute sick in the present hospitals, and for aged and infirm, able-bodied women with babies, married couples, casuals, etc., 1,398 beds; to utilise the Eastville Workhouse, removing the wooden structures, in the main building, and three of the five hospital pavilions (wood and iron) and adapting the present imbeciles' block for chronic sick cases, and also erecting four new pavilion blocks for acute sick cases, a special block for lying-in cases, and using the main building for aged and infirm, able-bodied, married couples, casuals, etc., and erecting new receiving wards and porter's lodge, 1,354 beds; to erect a separate building for the accommodation of all imbeciles and epileptics on a portion of the land owned by the Guardians recently acquired from the Committee of Visitors of the Bristol Lunatic Asylum, 724 beds; total, 3,476 beds. With certain alterations at Stapleton Workhouse, the Committee thought that the building would be very suitable for the accommodation of the classes they proposed, viz., acute sick, in the present infirmaries (293 beds); aged and infirm (818 beds); women (10), suckling babies (10), and six married couples in the main building. The estimate of the architect for the alterations and extensions at Stapleton was 6,360*l*., and at Eastville 50,565*l*. The Committee recommended that a separate institution be erected apart from the workhouses for the accommodation of all the imbeciles and epileptics chargeable to the Guardians. The Committee estimated the cost of this institution for imbeciles, which would contain all necessary administrative offices, complete in itself, at 100,000*l*. The report was adopted, and the Committee were instructed to appoint a deputation to wait upon the Local Government Board to explain the plans prepared by Mr. W. S. Skinner.

BOARD SCHOOLS, HARRINGAY.—The new schools in Mattison-road, Harringay, have just been completed. The buildings, five in number, including the caretaker's cottage, have been erected on a site of just over one and a half acres between Mattison and Pemberton roads, Harringay. They are built of red brick, with red-tiled roofs, in the Georgian style. The architects were Messrs. Mitchell and Butler, and the builders Messrs. McCormick and Sons.

PREMISES, TRAFALGAR-SQUARE, LONDON.—On the 7th inst. Lord Strathcona inaugurated the new European Traffic Headquarters of the Canadian Pacific Railway Company in Trafalgar-square. There is a frontage to Trafalgar-square of 54½ ft., and the height from the pavement to the top of the clock tower is 96 ft. The general office on the ground floor is 43 ft. by 32 ft. and 13½ ft. high. In the basement are four strong rooms, a motor room, &c., and there are five stories above the ground floor. The front is of polished granite on the ground floor, and of Portland stone above. An Otis electric elevator runs from basement to fourth floor. The building is fireproof construction throughout, all steel work being encased with concrete. The foundations being on sand, with softer material below, the whole site has been covered with a raft of Portland cement concrete, having rolled steel joists embedded therein. The staircase is lined throughout with marble. The mosaic floor in the entrance bears the company's monogram, and that in the general office the Canadian coat-of-arms. A series of pictures illustrative of the company's railway and steamship services will be inserted in the panels of the frieze around the walls of the general office. The walls of the waiting-room on the ground floor are panelled in oak. The building has been carried out from the designs and under the superintendence of Mr. G. Richards Julian, architect, of Basinghall-street, E.C., by Messrs. Mark Patrick and Son, of Westminster Bridge-road, S.E.

CENTRAL HOMES, NEW MALDON.—Kingston-on-Thames Guardians on Tuesday accepted the tender of Mr. B. E. Nightingale, Albert Embankment, S.E., at 5,757*l*. for erecting new central homes at New Maldon. There were 38 tenders. Mr. W. Hope was the architect.

LIBRARY FOR TEDDINGTON.—On Monday the Teddington District Council adopted a site for a free library on the Elmfield House Estate, and appointed Mr. Cheers quantity surveyor. A letter was read from Mr. Cheers giving details of plans he had prepared, and these were passed. The building will cost about 5,000*l*.

STAINED GLASS AND DECORATION.

WINDOW, WAREHAM CHURCH.—A two-light transom window has just been filled with stained glass in this church, the figures being St. Berin, bishop; St. Aldhelm, bishop (holding in his hand a model of the church); Alfred the Great; and Edward the Martyr. Each of these figures has a scroll over the heads bearing the name in English. This window has been designed and executed by Messrs. Percy Bacon and Bros., of London, and is placed in the church as a memorial of the restoration of the roof, as indicated by a brass below the window with the following inscription: "This window was placed here by the congregation in grateful recognition of the restoration of the roof by J. B. D., a parishioner, October, 1903." At the same time a small two-light stained-glass window, the work of the same makers, was placed above the chancel arch, representing two archangels with instruments in their hands, the colouring richly treated so as to give a pronounced effect between the chancel and nave.

SANITARY AND ENGINEERING NEWS.

WEYMOUTH HARBOUR IMPROVEMENTS.—In pursuance of an Act they obtained in 1898, the Great Western Railway Company will proceed with their new harbour and other works at Weymouth. They intend to supplant the present incommodious harbour, which is mostly used for the Channel Islands traffic, with a new harbour some 70 acres in area, and to construct two breakwaters from the North Fort and the new Admiralty breakwater respectively. Within the new harbour they propose to build two jetties, with warehouses and wharves, and they will also lay down lines of railway for conveyance of coal to vessels of war anchored in Portland Roads from the new dock railway along the Admiralty breakwater.

FOREIGN.

FRANCE.—It is understood that M. Kaempfen, the Director of the National Museums, is about to retire (he is 77 years old), and to be replaced by M. Homolle, the present Director of the French school at Athens.—M. Henry Marcel, the head of the Fine Arts Department of the Government, has decided to decorate the façade of the Tuileries facing the Rue de Rivoli with statues of eminent men. M. Germain has been commissioned to execute those which will be placed in the niches to right and left of the entrance to the Musée des Arts Decoratifs in the Pavillon Marsan.—At the Ecole des Beaux-Arts there is to be an exhibition of water-colours by M. Moisand, a pupil of the atelier Moyaux at the Ecole, who obtained the Prix Chaudesaigues, and has started on his tour in Italy in accordance with the conditions of the award.—M. Cormon has been commissioned by the Government to paint a picture of the reception of the Mayors of France at the Palais d'Elysée during the exhibition of 1900.—The exhibition of the "Artistes Decorateurs" opens this week at the Petit Palais on the Champs Elysées, and will be open for a month. The exhibition has been organised and arranged by M. Dubufe.—The annual exhibition of lady artists has just opened at the Georges Petit Gallery.—M. Louis Boussier has been elected President, for 1904, of the "Societé des Architectes Diplomés."—A Departmental prison is to be built at Belfort, at an estimated cost of 450,000 francs.

GERMANY.—The new Courts of Justice in Berlin are in process of construction; the work has been entrusted to Messrs. Fasquel and Mönnich, and will be carried out at a cost of nineteen million marks.—The French Church in the Gendarmenmarkt is to be restored at a cost of three million marks.—The new Children's Hospital is now completed, and is in use; the architects are Messrs. Diestl and Schmidt.—A bust of Professor Jacobsthal, executed by Herr Grüttner, was unveiled in the Technical Schools at Charlottenburg, in December; Professor Jacobsthal died on January 1st, 1902.—At the entrance of the Heerstrasse a Triumphal Arch is to be erected at a cost of a million marks.—The new Arch-Episcopal Seminary at Freising, designed by Professor Gabriel von Seidl, was opened in October.—Secondary Schools have been built at Krefeld, at a cost of 500,000 marks; a new theatre is to be built by the managers of the Apollo Theatre.—New Post Office buildings, designed by Herr von Zenger, have been opened at Lindau.—The Church of St. Rupert, at Munich, designed by Professor von Seidl, is completed externally; the building is intended to accommodate 3,000 people.—A Sanatorium for German railway servants has been built at Hanover-Münden; the building consists of basement, ground floor, two upper floors, and attics, and as regards plan and situation is admirably suited to the purpose for which it is intended. The plans are by Herr Max Küster.—A second Lunatic Asylum is to be built at Bayreuth.

AUSTRIA.—The Shelter for the Homeless in Vienna has been completed according to the plans of the architect, Herr Fleischer. It is proposed to build a new theatre at Vienna, to accommodate 3,000 to 4,000 people. The building is to be designed by Herr Fellner.

NEW YORK RAPID TRANSIT SUBWAY.—Considerable progress has been made towards the completion of this line, and work is so far advanced that trial trains have recently been running, two storage-battery cars from the Thirtyfourth-street line having been borrowed for the purposes of the experiments. One car was taken into the subway at Canal-street, being run to and fro between that point and Thirtyfourth-street, and the other car was run between Fiftieth-street up to the end of the finished line in Upper Broadway. These trial runs were, of course, merely intended to test the general construction of the permanent way, and some time will necessarily elapse before the system can be tested in a finally completed condition.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Ivor Jones, architect, of Cardiff, has entered into partnership with Mr. T. E. Richards, of Barry, who will carry on practice under the style of Ivor Jones and T. E. Richards, architects and surveyors, 18, St. Mary-street, Cardiff.

ENGLISH v. AMERICAN FURNITURE IN CAPE COLONY.—Mr. E. J. Cattell, Board of Trade correspondent at Cape Town, writing home to the Commercial Intelligence Department, states that the best descriptions of furniture imported into Cape Colony are, in general, manufactured in England, and the American importations are in no case superior in workmanship. On the other hand, American manufactures of this kind are of inferior quality, and, therefore, comparatively cheaper in price. In South Africa (Mr. Cattell continues) there is a greater demand for a lower grade of furniture than is considered to be of the best English quality, and, as a consequence, American furniture is much in favour, and finds a ready sale. The warehouses in Cape Colony do not give any preference to American manufactures; they are very patriotically inclined, and, as far as is consistent with the needs of the country, they place their orders in England. But there are some classes of furniture which are not obtainable in England at the price which finds a ready sale in Cape Colony, and it is in these departments that the American has an advantage over the English manufacturer, more especially in the case of cheap roller-top desks, extension tables, and chairs. It is very satisfactory to be able to report that the furniture dealers in Cape Colony pay the English manufacturer a great compliment in connection with the manner in which orders are executed. Their experience has invariably been that the exact specification of an article required is rigidly adhered to, and the delivery of such orders is made with commendable expedition and accuracy, English firms being in all respects ahead of their American competitors in this class of business. Their agents are uniformly pronounced to be all that is desired in the matter of business capabilities; whilst their courtesy and general willingness to meet the local buyers leave nothing to be desired.

USES OF THE ELECTRIC FURNACE.—In connection with the manufacture of carborundum, a product of the electric furnace, it has been noticed that when the furnace is heated to an excessively high temperature, the carborundum is decomposed, silicon passing off as vapour, while the carbon remains behind as graphite. This observation has suggested the possibility of producing graphite from amorphous carbon

by the decomposition of carbides; and from a recent issue of the "Journal of the Franklin Institute," we learn that the idea has been developed in a practical manner for the production of graphite for use as paint pigment, lubricants, and in the manufacture of graphite electrodes, which are largely used in electro-metallurgical and electro-chemical processes. Similarly, a process has been developed for manufacture of silicon, which, in spite of the fact that it is one of the most widely distributed elements, has only been obtained in the pure state with considerable difficulty. It can now be manufactured at a reasonable rate by the aid of the electric furnace, and will probably find an extended use in the manufacture of silicon alloys and for other purposes.

"MYCENÆAN" MARBLE.—According to a recent report by the United States consul at St. Thomas, Ontario, important improvements have been effected in the manufacture of Mycenæan marble, an artificial material now used extensively in America in the decoration of halls, houses, hotel lobbies, etc. It is sometimes referred to as coral marble, or coral tiling. The consul himself describes it as "practically a real marble artificially manufactured, and much admired for its columnar and wainscotting effects." The colour effects are considered especially fine, and the durability of the tiles is said to be very great. Another advantage noted is the applicability of the tiling to almost any surface, rough or smooth. The process is said to be a secret one, known only to the inventor, who has sold his rights to a Canadian company.

NEW MOTOR TRAIN.—A novel system of locomotion, invented by Colonel Renard, is fully described in the columns of our contemporary *Le Génie Civil*, and last week was tried experimentally in the streets of Paris. The train consists of a petroleum-driven vehicle, resembling a road-locomotive, but which may, perhaps, be more correctly described as a steering and machinery car, from which motive power is distributed by means of an articulated shaft to all the other cars or waggons in the train. Similarly, the braking of the whole train is effected by means of a jointed rod, suitably connected with all the brakes, which, therefore, are under the control of the driver on the front car. It will be seen from this brief description that the system combines features of considerable novelty, and the distribution of motive power through the large number of driving wheels in the train, cannot fail to give satisfactory results. Further, the application of a continuous brake in the manner indicated, is a decidedly advantageous feature. During the recent trial in Paris, the train was guided with wonderful ease through the crowded traffic, and there ought to be a large field of usefulness open to the invention.

THE ELECTRICAL STANDARDISING INSTITUTION.—As the result of the recent scholarship examinations the examiners recommend the following awards: To H. S. Phillips (Oakham School) an exhibition of forty guineas, tenable for two years; to L. W. Ballard (Dunheved College, Launceston) and G. E. Whitton (Wellingborough Grammar School) exhibitions of thirty guineas, tenable for two years; and to H. R. Ainsley (Masonic School) a special prize of twenty guineas.

HOUSING SCHEME, SALFORD.—At a recent meeting of Salford Town Council, the Health Committee recommended the adoption of a scheme for the erection of tenement dwellings in the Greengate dictrict. The scheme provides for the erection of thirty-eight two-story buildings divided into seventy-six tenements, allowing for four people to a tenement; 304 persons will thus be accommodated. Each of the tenements will consist of a living-room, a bedroom, scullery, and pantry, with various accessories. The total estimated cost, including land 7,890*l.* and buildings 9,883*l.*, is 19,444*l.* Of this amount 2,078*l.* will be payable to the Improvement Committee, who own part of the site. The annual expenditure is estimated at 1,137*l.* 6s. 9d., and the annual income, after allowing for empties (the rental of each tenement being taken at 4s. 6d. per week), at 844*l.* 14s. 9d. On these figures the engineer reports that it will be necessary to make provision for an annual contribution of 292*l.* 12s. from the rates to the sinking fund and interest account. The committee's scheme was adopted by twenty-seven votes to thirteen.

WILLING'S PRESS GUIDE.—Willing's Press Guide for 1904 (J. Willing, jun., Ltd., 125, Strand, W.C.) is the thirty-first annual issue of a very useful and handy index of the Press of the United Kingdom. The work, which is published at 1s., also contains a list of the principal colonial and foreign journals.

ST. MARY, NEWINGTON, CHARITIES.—The Charity Commissioners have framed a scheme for consolidating and readjusting many of the numerous charities and kindred endowments which appertain to this parish. The scheme sets up a body of sixteen trustees, who are charged with the administration of the receipts arising from the Elephant and Castle charity and thirteen other charities, yielding an aggregate annual income of about 4,500*l.*, besides the freehold of the parish almshouses on the John Walter foundation. The first-named charity consists of the "island" plot, on which stand the well-known public-house and ten or eleven houses and shops at the junction of Newington-causeway and Walworth-road. When the charity was founded in 1658 it yielded an income of 5*l.* per annum; the present income amounts to 2,750*l.* yearly, to which should be added the capital sum of 30,000*l.* acquired by way of premium upon the granting of a new building lease of the ground in 1897. The trustees will be authorised to nominate three-fourths of the inmates of the almshouses, to let in allotments—as provided by the Allotments Extension Act of 1882—any portions of the vacant land belonging to the charities, to contribute 300*l.* every year to the Polytechnic Institute in Borough-road, and to apply a sum of 500*l.* yearly towards the provision of nurses for the sick and infirm, and to expend not more than 3,000*l.* in building and equipping a nurses' training institute. The remaining clear annual income is to be applied to the maintenance of almspeople in the almshouse in Hampton-street and to the bestowal of pensions.

ST. KATHARINE'S CHAPEL, MILTON-ABBAS.—This ancient church, which during a long period had served for baser uses, has recently been repaired and reopened for public worship. It consists of a nave and chancel, measuring about 60 ft. by 20 ft., and having very thick walls, which, together with the two doorways and the older of the windows, are of the Saxon or Early Norman type. It is said that the chapel was originally built by King Athelstan upon the spot in his camp at Middleton Hill, in Dorsetshire, where he had received presage of a coming victory over the Danes; he also celebrated his success by founding close by, in 937-8, a religious house for secular canons, which he dedicated to SS. Mary, Michael, Sampson, and Branwaladr, and which, thirty years afterwards, *temp.* Edgar, was converted into an abbey for forty Benedictine monks. Milton Abbey, built after designs by Sir William Chambers, in or about 1772 for the Earl Dorchester, was erected on the site of the conventual buildings. On the west jamb of the south door of the chapel is an inscription concerning indulgences: "Indulgencia: H. Sci: loci: c: e: x: dies"; and on the east jamb is a raised consecration cross of very early workmanship.

THE LATE MR. H. DRU-DRURY.—Adverting to the announcement in our "Obituary" column of last week (p. 39 *ante*), we may state that at a coroner's inquest, held at Greenwich on the 7th inst., the jury returned a verdict of "Accidental death," with an expression of their opinion that the railway company should make the place where the accident occurred more safe.

REGENT-STREET, etc., 1801-1901.—In the article on the history of Regent-street in our issue for January 2 the statement (page 10) that the sale of Hanover Chapel had a capital value of 414,000*l.* seems to have been not quite accurate; it should have been that it was at the rate of 414,000*l.* per acre.

MECHANICAL ENGRAVING AND COLOUR PRINTING.—The Board of Education, in co-operation with the Council of the Society of Arts, intend during the present year to hold, in the Victoria and Albert Museum, South Kensington, an Exhibition of Engravings produced by mechanical means, such as photogravure and other photographic processes, as a sequel to the Exhibition of Engraving and Etching held during last summer; and, as great advancements have been made in printing in colours since the Exhibition of Modern Illustration in 1901, specimens of colour printing will be included. A committee, of which Sir William de W. Abney, K.C.B., F.R.S., will act as Chairman, has been formed to advise the Board in carrying out the exhibition. All communications should be addressed to the Secretary, Exhibition of Mechanical Engraving, Board of Education, South Kensington.

SALES OF PROPERTY.—No. 9, Grosvenor-gardens, S.W., the residence hitherto of Lord Churchill, has been acquired for purposes connected with the convalescent home for officers at Osborne House, Isle of Wight, lately presented to the nation by King Edward VII.—In the course of next month will be offered for sale by auction a portion of the Yorkshire, W.R., and other estates belonging to Lord Crewe, and comprising nearly 7,200 acres, with a total rent-roll of 6,582*l.* per annum, which, having belonged to many generations of the Milnes family, descended to their present owner from Richard Monckton Milnes, first Lord Houghton, who married a daughter of the second Lord Crewe. The estates include Fryston Hall, with 2,000 acres, near Ferry Bridge; Bawtry Hall, on the Nottinghamshire border, a district famed for its quarries of Roche Abbey stone; lands at Great Houghton, near Barnsley; Austerfield, near Bawtry; Penistone, where "Yorkshire flags" are quarried; Goole; Doncaster; Timberland, near Sleaford; Thurlestone, the native place of the eminent and blind mathematician Nicholas Saunderson; Fishlake, on the Don, where Cornelius Vermuyden erected an embankment in 1600; Bullhouse Hall, a fine old mansion in the Penistone coal-mining district; Tapton Hall, Derbyshire, the home of William Milnes, *temp.* Elizabeth; and the Old Hall Inn at Great Houghton, which in the seventeenth century was the manor house of the Rhodes family and the home in her girlhood of the Countess of Strafford.—It is stated that Earl Fitzwilliam has purchased for 85,000*l.* the Duke of Bedford's property, consisting of about 4,500 acres, in the counties of Huntingdon and Northampton, which embrace 600 acres of woodland, the "Bedford Purlieus," famed in the annals of the Fitzwilliam Hunt, and nearly the entire parish of Wansford, situated on the Nene, in the northern portion of the latter county, and traversed by the great North road from London to Stamford and York.—Monkhams, at Woodford, in Essex, which has been placed in the market, forms one of the few remaining properties after its kind near London, and consists of a large mansion standing in a finely-timbered park, extending over 180 acres; it belonged during a long period to the family founded by Sir John Lyon, *temp.* Henry VIII., and was the home of H. Ford Barclay, the banker.—Mancetter, or Mancester, Manor House, near Atherstone, in north Warwickshire, reckons its history from the Tudor period, when it was occupied by the Glover family, of whom Robert Glover, at Coventry in 1555, and Jocasta, wife of Thomas Lewes and widow of Sir George Appleby, at Lichfield in 1557, suffered death for their adherence to the Protestant faith in the reign of Queen Mary I. An apartment in the house is known as the "Martyr's bedroom"; the house, constructed mainly of timber, retains two of its old gables; the middle portion was refronted with brick four years ago. Not far distant lie the Castle-banks and Oldfield-banks, vestiges of the Roman station named Manduessedum by Antonius, and intersected by Watling Street.

IMPORTS AND EXPORTS OF CEMENT.—The imports of cement into the United Kingdom for building and engineering purposes in 1903 amounted to 261,219 tons, valued at 410,396*l.*; in 1902, 240,893 tons, valued at 392,567*l.*; The exports of cement in 1903 amounted to 400,380 tons, valued at 677,740*l.*; in 1902, 303,252 tons, valued at 520,512*l.*; and in 1901, 305,331 tons, valued at 583,974*l.* The exports in the three several years were distributed as follows:—

	1901. Tons.	1902. Tons.	1903. Tons.
To Holland	3,299	2,676	2,472
" U.S., America ..	8,102	16,801	21,204
" Brazil	4,818	5,538	3,844
" Argentina	17,255	17,825	17,930
" S. Africa	25,453	44,942	80,798
" East Indies	54,580	52,511	63,360
" Australia	26,226	21,156	17,766
" New Zealand ..	19,004	20,032	31,221
" Canada	17,667	8,642	29,444
" Other Countries	128,937	113,130	132,341
Total	305,331	303,252	400,380

A HOUSE MOVING FEAT.—An operation, recently carried out at Brown's Station, on the Baltimore and Ohio Railway, is the most remarkable feat in the way of house moving which has come to our notice. The building, known in the locality as the Brown Mansion, has stood for some generations at the foot of the cliffs near the banks of the Monongahela River. Owing to improvements in progress on the railway, the site formerly occupied by this house was sold to the company. Being reluctant to consent to its demolition, the present owner decided to move the house to a new site at the top of the cliff, which is 160 ft. high. As the building measures 85 ft. by 40 ft., and weighs fully 800 tons, it will be understood that the task was not altogether an easy one. The first operation was to insert eight large baulks of timber beneath the building, while beween these and the foundations were placed some two hundred steel girders. Four ledges were then cut in the face of the cliff at intervals of about 30 ft., and as the building was raised by jacks eight walls of timber crib-work were built up beneath it. When the house had been lifted to a sufficient height it was drawn upon the first ledge by means of winches, and, similarly, it was raised from ledge to ledge, until finally landed in safety upon the new site, 200 ft. back from, and 160 ft. above, its former position. We understand that the expenditure considerably exceeded the original cost of the house itself, but the object of the owner was to preserve a valued heritage, and to avoid the destruction of a familiar landmark.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

28,196 of 1902.—F. MILAN and J. MORTON: *Hydraulic Presses for Pressing and Moulding Dry or Semi-dry Bricks or Slabs.*

Hydraulic presses for pressing and moulding bricks, blocks, or slabs from dry or semi-dry material, consisting in the combination of two arms arranged vertically one above the other in the same axial line in separate cylinders, the upper arm carrying dies or stamps and forming the pressing arm, and the lower arm carrying corresponding dies or stamps normally forming the abutments of the moulds, and operating when said arm is raised to discharge the pressed bricks or blocks from the moulds, the inlet valves controlling the admission of water to each end of said cylinder being coupled to the outlet or exhaust valves controlling the exhaust from the opposite ends of the respective cylinders, so that they open and close simultaneously.

28,634 of 1902.—J. TRIPPETT: *Seats and Stools for Outdoor Use.*

In seats and stools for outdoor use the arrangement and combination of parts and appliances by which such seats may be automatically wiped when wet by the movement of a reversible back, which brings into contact with the said seat a "squillagee."

1468 of 1903.—G. W. EASTON: *Outdoor Seats.*

In outdoor seats, the arrangement of mechanism actuated by the uprights of the back rest adapted to turn the seat laths, supported on pivots, half round when the uprights are moved from the vertical into either end position, and of weights or springs, or both, for automatically returning the uprights to their vertical position, and thereby turning the underside of the laths upwards when the seat is vacated.

3221 of 1903.—A. SHERWIN: *Lavatory Basins.*

This invention has for its object to provide, in conjunction with lavatory basins or like articles, an overflow made integral with the basin or receptacle for the purpose of giving the ready access for the cleansing of the said overflow. To this end a table surrounding the basin or receptacle is provided. A portion of this table is sunk or saddled out at its junction with the basin or receptacle so as to form a recess having a perforated floor or platform at a level conveniently below the surface of the surrounding table. A horn or pipe is connected with the sunk portion of the table immediately underneath the said perforation for the purpose of conducting away any water which may rise in the basin above the level of the perforated floor or platform.

3224 of 1903.—L. W. SHARPE: *Locks or Fastenings for Doors.*

A hasp or fastener with which the bolt of a lock engages, constructed with a loose or removable abutment for the lock bolt, which can be released or removed to permit of the opening of the door without operating the lock.

503 of 1903.—C. E. LONG and J. C. IRVINE: *Locks or Fastenings.*

This relates to a lock having a bolt member pivotted to a case or frame upon one part of a structure, and adapted to engage another part of a structure by receiving a rotative angular movement about its pivot axis, in combination with a key-operated lock carried upon and by the bolt member at a distance from its axis, the key-operated lock accompanying the bolt and receiving a rotatory translation movement, thereby bringing said key-operated lock into position so that its key-operated bolt can be caused to engage a bolt hole in the frame when the bolt member is in engagement.

3809 of 1903.—T. S. FORBES: *Rubber Tile and like Flooring or Floor Coverings.*

A rubber-tiled floor covering composed of rubber sheeting formed with boundary lines of tiles, and having in it tile-shaped recesses or depressions, which are filled in with detached and coloured rubber tiles to form a flat surface, the said covering being adapted to be secured to a floor by nails driven through the sheeting under the detached tiles.

7489 of 1903.—W. REUTER: *Overhead Travelling Cranes and the Like.*

An overhead travelling crane or the like, with two superposed tracks and lifting appliances displaceable thereon, the arrangement being characterised by the fact that the lifting appliance, by means of superposed rollers, may be transferred without the employment of switches, turntables, or the like from the fixed track to the movable track, so that it may be displaced with the latter not only at right angles to the fixed track, but also upon it parallel with this latter by continuing its own rolling movement upon the movable track.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

10,039 of 1903.—W. PHILLIPS and E. VERITY: *Windows.*

In connection with sliding-sash windows, the device of a hinge attachment, one wing of which is secured to side window frame or staff beading of the same and the other wing formed as a hasp, and a hook or staple attachment secured to the adjoining stile of the sash frame, so that when the sash frame is sufficiently raised the hasp wing can be turned back over the hook or staple of said attachment.

13,565 of 1903.—J. E. HALL: *Moulds and Centerings for Conduits.*

A combined mould and centering for conduits, so constructed that they may be manipulated at one operation, and comprise a trough-shaped body formed longitudinally in sections, hinged together, and means for holding the sections relatively rigid when moulding the conduit and for moving them relatively to collapse the mould to enable it to be moved from the moulded conduit.

17,574 of 1903.—A. H. W. WEDLER: *Devices for Fastening, Adjusting, and Locking Window Sashes.*

A sash fastening device, comprising, in combination, the following parts secured to the lower sash, namely, a barrel, a piston, a quarter eccentric cam piece pivotally attached to the said piston, a coil spring acting to project the said piston, a key-lock upon the said barrel, a key fitting into such lock, and the following parts secured upon the upper sash: A receiver bed, an extension arm adapted to lie horizontally or to be raised erect, a spring for retaining the said arm in its erect position, and a hinge pin which carries the said extension arm and the said spring, and is bored with a fixed receiver hole, the said arm having a series of receiver holes in a vertical line with the fixed receiver hole, and with the piston when said arm is erect, and having also a bevelled receiver lip adapted, when the arm is in horizontal position, to allow the piston to automatically slide into the fixed receiver hole.

21,374 of 1903.—T. H. APPLEBY and J. TYLOR & SONS, LTD.: *Taps or Valves for Lavatory and other Such-like Purposes.*

Taps or valves in which a spout or bib, through which the water or other liquid is delivered, forms the arm or lever by which the tap or valve is opened and closed, which consists in causing the said spout or bib to rise as it is turned in one direction and to fall as it is turned in the opposite direction, and in connecting to the stem of the said spout or bib a valve which is opened by the rising and closed by the falling motions of the said spout or bib.

22,375 of 1903.—W. R. KINNEAR: *Sheet Metal Radiators.*

The subject of this invention is a radiator constructed of sheet metal, and more particularly a double tubular radiator, in which the spaces for the heating medium are formed in the respective units between two tubular members placed one within the other, and having an air flue extending centrally through the radiator. According to the invention, these tubular members are of flattened or elliptical section, and have the space between them closed by deflecting one or both of the members, so as to bring them together at their ends, where they are united by folded seams.

24,041 of 1903.—J. BACH: *Process for Manufacturing Fire Bricks, Crucibles, Retorts, and Other Refractory Articles.*

A process for manufacturing refractory articles, consisting in moulding and pressing chrome-ore, which is freed, by washing or otherwise, from the easily fusible admixtures, together with fire clay, and in burning the same.

24,510 of 1903.—L. SCHLENTHEIM and DIESPEKER, LIMITED: *Mosaic Steps.*

A method of constructing mosaic steps of the "granito" type, which consists in inserting previously formed mosaic segments in a step mould and then filling in.

24,781 of 1903.—R. N. HAIG and W. TOOMBS: *Construction of Fireproof Buildings.*

The construction of floors and roofs in fireproof buildings, consisting in the combination of rolled steel or iron joists, ties, angles, or other sections, and braces or ties consisting of steel or iron rods or bars passed under the bottom flange of each joist, tie, or angle, and their ends clipped over the top or opposite flange of the joist, tie, or angle that is on each side thereof.

24,933 of 1903.—E. E. HARLES and E. A. GUEDENEY: *Arresting Devices for Doors, Gates, and the like.*

Arresting devices for doors, gates, and the like, comprising an exterior part as a fixture in the floor or ground, into which enters an interior tube, with or without rubber at its upper part, under the action of a spring which can be sunk into the tube by pressure, and maintained by one or more stops guided by one or more grooves with angle joints.

25,003 of 1903.—J. W. AREGOOD: *Brick Driers.*

A brick drier, consisting of a collection of parallel tunnels, connected by a flue extending transversely there beneath, and a furnace communicating with the said flue.

24,807 of 1902.—W. P. THOMPSON: *Paving Material or Asphalte, Filling-up Cement, Waterproofing Material, and Paint.*

The manufacture of paving material, asphalte, filling-up cement, waterproofing for walls, flooring, or the like, or composition for making black ornaments or the like, which consists in the use or application of a mixture of "burgy" (the waste sand of glass works) and pitch, with or without the addition of tars, resins, lac, or dissolved varnish gum, and with or without suitable solvents.

27,736 of 1902.—C. W. HINMAN: *Gas Lighting and Heating Apparatus.*

A gas lighting and heating apparatus, consisting of a holder for holding a variable volume of mixed air and gas under constant pressure, a delivery pipe leading from it to the burner, a pump connected with said holder for simultaneously delivering measured volumes of air and gas thereto, air and gas inlets to said pump, means controlled by the volume of mixed air and gas in said holder for regulating the delivery of air and gas thereto, and a motor for operating said pump.

28,028 of 1902.—W. WHITE: *Apparatus for Use in the Construction of certain Partitions and Partition Walls, and certain other Walls and Baths, Tanks, and other analogous Receptacles.*

This invention relates to the improvements in the construction of walls, partition walls, baths, and tanks, which consists in the employment of sawn or other laths of wood formed into frames of convenient size and form, secured in position by the use of temporary struts or supports, and covered with plaster of the kind known as "granite plaster," or other plaster having similar properties.

24,339 of 1903.—E. G. WATROUS: *Flushing Tanks for Water-closets.*

A flushing tank, in which the float or lever is mounted in bearings upon the overflow pipe, and connected with the inlet valve in such a manner as to open the latter as the float descends, combined with mechanism for opening the discharge pipe, latching mechanism holding it in open position as the water is discharged, and devices operated by the descent of the float for closing said discharge valve.

23,438 of 1903.—S. EWING: *A Yard or Road Gully.*

A yard or road gully, with an integral swan-necked or bell-shaped trap entirely exterior to the body of the gully, a straight-topped weir parallel to the side wall of the gully, a funnel-shaped mouth of discharge or outer leg of trap, and an oblong inner leg, with its narrower sides tending inwards at its lower end flush to the sides of an inlet aperture on the body of the gully.

22,651 of 1903.—L. S. FRANKLIN: *Adjustable Scaffoldings.*

This relates to a scaffolding, comprising a pair of hollow poles, having open guide-ways formed in the front face thereof, sliding blocks designed to operate within the said poles, provided with suitable outwardly extending brackets, a platform designed to rest upon the said brackets, and means for adjusting the vertical position of the blocks within the poles.

TO CORRESPONDENTS.

W. E. R. (Below our limit.)

T. H. (We have not the information before us, and have not time to obtain it for this issue. The City Architect (Guildhall) could tell you.)

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commiss on to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

MEETINGS.

FRIDAY, JANUARY 15.

Royal Institution.—Rt. Hon. Lord Rayleigh, M.A., on "Shadows." 9 p.m.

Institution of Mechanical Engineers.—(1) Nomination of Officers for election at the Annual General Meeting on February 19. (2) Paper to be read and discussed: Sixth report to the Alloys Research Committee on "The Tempering of Steel," by the late Sir William C. Roberts-Austen and Professor W. Gowland. 8 p.m.

Institution of Civil Engineers (Students Meeting).—Mr. A. D. Creer on "Pumping and Disposal of Sewage at York." 8 p.m.

Glasgow Architectural Craftsmen's Society.—Mr. C. R. Bonn on "Steel Work Construction." 8 p.m.

MONDAY, JANUARY 18.

Royal Institute of British Architects.—(1) Award of prizes and studentships. (2) Mr. J. Starkie Gardner on "Architecture in Lead," with lantern illustrations.

London Institution.—Mr. M. H. Spielmann on "British Sculpture of To-day," illustrated. 5 p.m.

Liverpool Architectural Society (Incorporated).—Mr. Hastwell Grayson, M.A., on "Smoky Chimneys." 6 p.m.

TUESDAY, JANUARY 19.

Institution of Civil Engineers.—Paper to be further discussed: "The Electrical Re-Construction of the South London Tramways on the Conduit System," by Mr. Alexander Millar. 8 p.m.

Society of Arts (Applied Art Section).—Mr. George Coffey on "Celtic Ornament." 8 p.m.

Institute of Sanitary Engineers, Ltd. (Lectures on Practical Sanitary Science).—Mr. Henry Adams on "Supervision of Works in Progress." 7 p.m.

Royal Victoria Hall, Waterloo Bridge-road, S.E.—Mr. Bennett H. Brough on "Building Stones."

Dundee Institute of Architecture, Science, and Art.—Mr. David Smith on "An Architectural Tour in Italy." 8 p.m.

WEDNESDAY, JANUARY 20.

Society of Arts.—Mr. Thomas Casson on "Organ Design." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Annual meeting of the members. 8 p.m.

Institute of Sanitary Engineers, Ltd.—General Purposes and Finance Committee. 4 p.m. Election Committee, 5.15. Presidential address and paper by Mr. W. H. Maxwell, A.M.I.C.E. 7 p.m.

Institution of Civil Engineers.—Students' visit to the works of Messrs. Elliott Brothers, Lewisham. Train from Charing Cross Station to Lewisham Junction, 1.45 p.m.

FRIDAY, JANUARY 22.

Architectural Association.—Paper by Mr. Maurice B. Adams, entitled: "As to the Making of Architects, with Examples of Draughtsmanship." 7.30 p.m.

The Junior Institution of Engineers (Westminster Palace Hotel).—Mr. J. Fletcher Moulton, K.C., M.P., F.R.S., will deliver his presidential address. 8 p.m.

SATURDAY, JANUARY 23.

Architectural Association.—First Spring Visit, to the offices of the Royal London Friendly Society, Finsbury-circus, by permission of the architect, Mr. John Belcher, A.R.A. 2.30 p.m.

PUBLISHER'S NOTICES.

Nat. Tel., 6112, Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME LXXXV. (July to December, 1903) was given as a supplement with last week's issue.

CLOTH CASES for Binding the Numbers are now ready price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each.

THE EIGHTY-FIFTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence, will be ready on the 22nd inst.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, &c., &c.

Six lines, or under ..... 6s. 0d.
Each additional line ..... 1s. 0d.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

Six lines or under ..... 4s. 6d.
Each additional line ..... 0s. 6d.

Terms for series of Trade advertisements, and for front page, and other special positions, on application to the Publisher.

SITUATIONS WANTED (Single-handed—Labour only).

FOUR lines (about thirty words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

. Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine Street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE noon on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS advertising in "THE BUILDER" may have *Replies addressed to the Office*, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed 1s.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to J. MORGAN) should be addressed to the Publisher of "THE BUILDER," Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office 19s. per annum (52 numbers) or 4s. 9d. per quarter (13 numbers), can ensure receiving "The Builder" by *Friday Morning's Post*.

PRICES CURRENT OF MATERIALS.

. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 16 0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1 13 0	" " "
Facing Stocks	2 12 0	" " "
Shippers	2 10 0	" " "
Flettons	1 10 0	" at railway depôt
Red wire Cuts	1 13 0	" " "
Best Fareham Red	3 12 0	" " "
Best Red Pressed Ruabon Facing	5 0 0	" " "
Best Blue Pressed Staffordshire	4 4 0	" " "
Do. Bullnose	4 10 0	" " "
Best Stourbridge Fire Bricks	4 8 0	" " "
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	13 0 0	" " "
Headers	12 0 0	" " "
Quoins, Bullnose, and Flats	17 0 0	" " "
Double Stretchers	19 0 0	" " "
Double Headers	16 0 0	" " "
One Side and two Ends	19 0 0	" " "
Two Sides and one End	20 0 0	" " "
Splays, Chamfered, Squints	20 0 0	" " "
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	" "
Quoins, Bullnose, and Flats	14 0 0	" " "
Double Stretchers	15 0 0	" " "
Double Headers	14 0 0	" " "
One Side and two Ends	15 0 0	" " "
Two Sides and one End	15 0 0	" " "
Splays, Chamfered, Squints	14 0 0	" "
Second Quality White and Dipped Salt Glazed	2 0 0	" less than best,

	s. d.	
Thames and Pit Sand	7 3	per yard, delivered.
Thames Ballast	6 0	" "
Best Portland Cement	29 0	per ton, delivered.
Best Ground Blue Lias Lime	20 6	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered.
Stourbridge Fire Clay in sacks	27s. 6d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms depôt	1 8½	" "
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2 1	" "
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2 2½	" "

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld. rly. depôt.
Beer in blocks	1 6	" "
Greenshill "	1 10	" "
Darley Dale in blocks	2 4	" "
Red Corsehill "	2 5	" "
Closeburn Red Freestone	2 0	" "
Red Mansfield "	2 4	" "

YORK STONE—*Robin Hood Quality.*

	s. d.	
Scappled random blocks	2 10	per ft. cube, deld. rly. depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per foot super. "
6 in. rubbed two sides ditto, ditto	2 6	" "
3 in. sawn two sides slabs (random sizes)	0 11½	" "
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	" "
1½ in. to 2 in. ditto, ditto	0 6	" "
HARD YORK—		
Scappled random blocks	3 0	per ft. cube "
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2 8	per ft. super. "
6 in. rubbed two sides Ditto	3 0	" "
3 in. sawn two sides slabs (random sizes)	1 2	" "
2 in. self-faced random flags	0 5	" "
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube.
" " " 6 in. sawn both sides landings	2 7	deld. rly. depôt. per ft. super. deld. rly. depot.
" " 3 in. do.	1 2½	" "

SLATES.

in. in.	£ s. d.	
20 x 10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20 x 12 " "	13 17 6	" "
20 x 10 best seconds "	12 15 0	" "
20 x 12 " " "	13 10 0	" "
16 x 8 best " "	7 0 0	" "
20 x 10 best blue Portmadoc	12 12 6	" "
16 x 8 best blue Portmadoc	6 12 6	" "
20 x 10 best Eureka unfading green	15 2 6	" "
20 x 12 best Eureka unfading green	17 2 6	" "
18 x 10 " "	12 10 0	" "
16 x 8 " "	10 5 0	" "
20 x 10 permanent green	11 10 0	" "
18 x 10 " "	9 10 0	" "
16 x 8 " "	6 10 0	" "

TILES.

	s. d.	
Best plain red roofing tiles	42 0	per 1000 at rly. depot
Hip and Valley tiles	3 7	per doz. "
Best Broseley tiles	50 0	per 1000 "
Do. Ornamental tiles	52 6	" "
Hip and Valley tiles	4 0	per doz.
Best Ruabon red, brown or brindled do. (Edwards)	57 6	per 1000 " "
Do. Ornamental do.	60 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 0	" " "
Best Red or Mottled Staffordshire do. (Peakes)	51 9	per 1000 " "
Do. Ornamental do.	54 6	" " "
Hip tiles	4 1	per doz. " "
Valley tiles	3 8	" " "
Best "Rosemary" brand plain tiles	48 0	per 1000 " "
Best Ornamental tiles	50 0	per 1000 " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 8	" " "

WOOD.

	At per standard. £ s. d.	£ s. d.	
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15 10 0	16 10 0	
Deals: best 3 by 9	14 10 0	15 10 0	
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 10 0	12 10 0	
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.	
Deals: seconds	1 0 0	less than best	
Battens: seconds	0 10 0	" " "	
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	9 10 0	
2 in. by 4½ in. and 2 in. by 5 in.	8 10 0	9 10 0	
Foreign Sawn Boards—			
1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.	
¼ in.	1 0 0	"	
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 4 10 0	5 0 0	
Seconds	4 5 0	4 10 0	
Small timber (8 in. to 10 in.)	3 12 6	3 15 0	
Small timber (6 in. to 8 in.)	3 0 0	3 10 0	
Swedish balks	2 15 0	3 0 0	
Pitch-pine timber (30 ft. average)	3 5 0	3 15 0	

JOINERS' WOOD.

White Sea: first yellow deals,	At per standard.		
3 in. by 11 in.	23 0 0	24 0 0	
3 in. by 9 in.	21 0 0	22 10 0	
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0	
Second yellow deals, 3 in. by 11 in.	18 10 0	20 0 0	
3 in. by 9 in.	17 10 0	19 0 0	
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0	
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0	
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0	
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0	
Do. 3 in. by 9 in.	18 0 0	19 10 0	
Battens	13 10 0	15 0 0	
Petersburg: second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0	
Do. 3 in. by 9 in.	14 10 0	16 0 0	
Battens	11 0 0	12 10 0	
Third yellow deals, 3 in. by 11 in.	13 10 0	14 0 0	
Do. 3 in. by 9 in.	13 0 0	14 0 0	
Battens	10 0 0	11 0 0	
White Sea and Petersburg:—			
First white deals, 3 in. by 11 in.	14 10 0	15 10 0	
" " 3 in. by 9 in.	13 10 0	14 10 0	
Battens	11 0 0	12 0 0	
Second white deals, 3 in. by 11 in	13 10 0	14 10 0	
" " 3 in. by 9 in.	12 10 0	13 10 0	
" " battens	9 10 0	10 10 0	
Pitch-pine: deals	16 0 0	18 0 0	
Under 2 in. thick extra	0 10 0	1 0 0	
Yellow Pine—First, regular sizes	33 0 0	upwards.	
Oddments	22 0 0	24 0 0	
Seconds, regular sizes	24 10 0	26 10 0	
Yellow Pine oddments	20 0 0	22 0 0	
Kauri Pine—Planks, per ft. cube	0 3 6	0 4 6	
Danzig and Stettin Oak Logs—			
Large, per ft. cube	0 2 6	0 3 6	
Small "	0 2 3	0 2 6	
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6	
Dry Wainscot Oak, per ft. sup. as inch	0 0 7	0 0 8	
¼ in. do. do.	0 0 6½	—	
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11	
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0	
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0	
Teak, per load	17 0 0	21 0 0	
American Whitewood Planks—per ft. cube	0 4 0	—	

Prepared Flooring—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 1 6
1 in. by 7 in. white, planed and shot	0 11 6	0 13 6
1 in. by 7 in. white, planed and matched	0 12 0	0 14 0

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered.
*Designs for a New Schools	Govs. of N'c'tle-on-Tyne R.G.S.	100l., 50l., 25l.	April 30
*Design for Reconstruction of Meat Market	Haverfordwest Town Council	20 Guineas	No Date
Wesleyan Sunday School, Sale	J. Taylor, Sec., Stanley Mount, Brooklands, Cheshire.	Not stated	do.

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Hartshill Stone for One Year	Banbury Town Council	N. H. Dawson, Borough Surveyor, Town Hall, Banbury	Jan. 18
Nursery Block, Fir Vale Workhouse	Guardians, Sheffield Union	J. Creswick Brameld, Architect, 8 and 10, George-st., Sheffield	do.
Additions, Temp. Church, St. Vincent, Canton, Cardiff	Rev. D. Davies, M.A.	J. W. Rodger, Architect, 14, High-street, Cardiff	do.
Walls and Fences, West St. Leonard's School	Education Committee	C. A. Pigott, Architect, Saxon Chmbrs., London-rd., St. Leonards	do.
450 yds. 9-in. Sewerage, Fisher's-lane District	Alnwick U.D.C.	G. Wilson, Town Surveyor, Council Offices, Green Bat, Alnwick	do.
Street Works	Halifax Corporation	J. Lord, Borough Engineer, Town Hall, Halifax	do.
Fuel Economiser and Steam Engine at Hospitals	Ashton-under-Lyne Guardians	J. Eaton, Sons, & Cantrell, Architects, Stamford-street, Ashton	Jan. 19
Plumbing Work in connection with Water Supply	Mountain Ash U.D.C.	W. G. Thomas, Surveyor, Town Hall, Mountain Ash	do.
Bridge Reconstruction over the Exe, Stoke Canon	G. W. Railway	Engineer, Paddington Station, London	do.
240 Tons Steel Bridge Girders, &c.	do.	do.	do.
Retorts, &c.	Dundee Gas Commissioners	A. Yuill, Gas Engineer, Dundee Gasworks	do.
Fire Bricks, &c.	do.	do.	do.
800 Lineal Yards Stoneware Pipe Sewer	Rhondda U.D.C.	W. J. Jones, Engineer, Public Offices, Pentre, Rhondda	do.
Stoneware Pipe Sewers	do.	do.	do.
*Making-up North Grove	Tottenham U.D.C.	Council's Engineer, Croft House, High-road, Tottenham	do.
Eighteen Water Closets, Police Cottages, Priory-road	Dudley Watch Committee	J. Gamage, Borough Engineer, Dudley	Jan. 20
Public Convenience, St. Ann's Fort	King's Lynn Corporation	H. J. Weaver, Borough Surveyor, King's Lynn	do.
House, Scotforth, Lancaster	.....	J. Parkinson, Architect, 67, Church-street, Lancaster	do.
Granite, Meriden, Coventry	Meriden R.D.C.	A. Seymour, Clerk, 11, Priory-street, Coventry	do.
Aisles, &c., and Restoration of Claughton Church	.....	Austin & Paley, Architects, Lancaster	do.
Escape Staircase at Schools, Swinton, Manchester	Guardians, Poor of Manchester	A. J. Murgatroyd, Architect, 23, Strutt-street, Manchester	do.
Making-up Poynter-road, Bush Hill Park	Enfield U.D.C.	R. Collins, Surveyor to Council, Public Offices, Enfield	do.
Paints, &c.	Cleansing Com., Manchester Corp.	R. Williamson, Supt. of Cleansing Dept., Town Hall, Manchester	do.
Street Works, Porth, Penygraig, &c.	Rhondda U.D.C.	W. J. Jones, Engineer, Public Offices, Pentre, Rhondda	Jan. 21
400 Tons Tramway Steel Rails, &c.	Cardiff Corporation	W. Harpur, Borough Engineer, Town Hall, Cardiff	do.
Firebricks, Retorts, &c.	Salford Gas Department	W. W. Woodward, Engineer, Gas Offices, Bloom-street, Salford	do.
Public Convenience, Minerva-street	Glasgow Corporation	Office of Works, 64, Cochrane-street, Glasgow	do.
Widening main rd., between Morriston & Pontardawe	Glamorgan County Council	County Council Offices, Westgate-street, Cardiff	do.
Two Iron Staircases and Balconies	West Bromwich Union	J. W. Allen, Architect, 298, High-street, West Bromwich	Jan. 22
Steel or Iron Coal-lighters	Lords Commis. of the Admiralty	Secretary of the Admiralty, C.N.I. Branch, Whitehall, S.W.	do.
Two Lighters for Oil	do.	do.	do.
Sewer, &c., Bittaford Bridge, Ugborough	Totnes R.D.C.	C. Ellis, Surveyor, Buckfastleigh	do.
Earthenware Pipe Sewers (Contract 1)	Methley U.D.C.	G. B. Hartley, Engineer, East Parade Chambers, Leeds	Jan. 23
Sewage Disposal Works (Contract 2)	do.	do.	do.
Sewering, &c., Back-lane, Willenhall	Willenhall U.D.C.	E. Fellows, Engineer, Town Hall, Willenhall	do.
Kerbing, &c., Bilston Main Road	do.	do.	do.
Isolation Hospital, &c., Dutton	Runcorn R.D.C.	G. E. Bolshaw, Architect, 189, Lord-street, Southport	do.
Clothing Store Works, Workhouse, Queen's-road	Croydon Guardians	F. West, Surveyor, 23, Coombe-road, Croydon	do.
Dredging, Pigeon House Harbour	Dublin Corporation	Engineer's Office, City Hall, Dublin	do.
Verandah, Parr Hall, Palmyra-square	Parr Hall Committee, Warrington	T. Longdin, Borough Surveyor, Town Hall, Warrington	do.
Four Dwelling Houses, Newstead, Halifax	.....	T. Kershaw, A.R.I.B.A., Lancs. & Yorks. Bank Chambers, Halifax	do.
Cornish Boiler, Devonport Workhouse	.....	Workhouse Master's Office	Jan. 25
Entrance Lodge, &c., New Cemetery, North Prospect	Devonport Corporation	J. F. Burns, Borough Surveyor, Municipal Offices, Devonport	do.
Lavatory Works at Workhouse, Dutton, Preston Brook	Runcorn Guardians	W. & Segar Owen, Architects, Cairo-street, Warrington	do.
Abattoir, West Hill, Dartmouth	.....	R. Montague Luke, Engineer, 15, Princess-square, Plymouth	do.
Furniture, Infectious Diseases Hospital, Seacroft	Sanitary Committee, Leeds	T. Thornton, Acting Town Clerk, Leeds	do.
Mortuary Buildings, Crawshay-lane, Penarth-road	Cardiff Corporation	W. Harpur, Borough Engineer, Cardiff	do.
Cast Iron Pipes	Derwent Valley Water Board	E. Sandeman, Engineer's Office, Bamford, via Sheffield	do.
Sewering, &c., of Double Tramways, Leicester-road	Salford Corporation	Borough Surveyor, Town Hall, Salford	Jan. 26
New Road from Leicester-road to Bury Old-road	do.	do.	do.
Refuse Destructor Buildings, &c., Westleigh	Leigh Corporation	T. Hunter, Borough Engineer, Bank Chambers, Leigh	do.
Lustleigh Water Supply	Newton Abbot R.D.C.	S. Segar, Engineer, Union-street, Newton Abbot	do.
Gate, Lodge, &c., Blackrock College	.....	P. H. M'Carthy, B.A., 32, Bachelor's-walk, Dublin	do.
Iron Railings, Gates, and Wickets, Blackrock College	.....	do.	do.
Temporary Schools, Manley Park, Whalley Range	Withington U.D.C., Educa. Com.	E. Woodhouse, Architect, 88, Mosley-street, Manchester	do.
*Enlargement of Sorting Office, Upper Holloway	Commiss. of H.M. Works, &c.	H.M. Office of Works, Storey's Gate, S.W.	do.
Stores, Northfield-road, Crookes	Eccleshall Indus. & Prov. Society	H. L. Paterson, A.R.I.B.A., 19, St. James's-street, Sheffield	Jan. 27
Two Iron Fire Escape Staircases (block 5) at W'khouse	Southampton Guardians	Mitchell, Son, & Gutteridge, Arch's., 9, Portland-st., Southampton	do.
An Iron Staircase, &c., from Tramp Ward	do.	do.	do.
Making-up Oakfield-road	Erdington U.D.C.	H. H. Humphries, Engineer, Public Hall, Erdington, Birmingham	do.
Flags, Kerbs, &c.	Sale U.D.C.	W. Holt, Engineer and Surveyor, Council Offices, Sale	do.
Flags, Kerbs, Gritt Setts, Pipes, &c.	do.	do.	do.
Lamp Repairing Shop, Gateshead Locomotive Works	N.E. Railway	W. Bell, Architect, Central Station, Newcastle-on-Tyne	do.
Office Accommodation, &c., St. Andrew's Dock, Hull	do.	W. Bell, Architect to the Company, York	do.
*Roadmaking Works	Wood Green U.D.C.	Council's Surveyor, Council Offices, Town Hall, Wood Green	do.
*Erection of New Free Library	Boro' of Ramsgate	Town Clerk, Albion House, Ramsgate	do.
*New School at Gorse Hill	Stretford Educational Authority	Frank H. Mee, 32, Victoria-street, Manchester	Jan. 28
Flints, Gravel, &c., for One Year	Hertfordshire County Council	Urban A. Smith, County Surveyor, Hatfield	do.
*Annual Contracts	Lambeth Boro' Council	Boro' Engineers, 246, Kennington-road, S.E.	do.
Steel Girder Bridge, &c., Weedon-street, Brightside	Improvement Com., Sheffield	C. F. Wike, City Surveyor, Town Hall, Sheffield	Jan. 29
Granite, Slag, &c.	Spilsby R.D.C.	T. A. Bushridge, District Surveyor of Highways, Spilsby	do.
Sewering, &c., Grena-road, Richmond, Surrey	Richmond Town Council	J. H. Brierley, Borough Surveyor, Town Hall, Richmond	do.
Dwelling House, Llanfarian	T. E. Owen	J. Lewis Evans, Architect, 21, Great Dargate-street, Aberystwyth	do.
Fuel Oil for Twelve Months	.....	Officer Commanding, A.S.C., Granby Barracks, Devonport	do.
Timber Safety Fencing, Badenoch Division	.....	A. Mackenzie, C.E., Kingussie, N.B.	Jan. 30
Additions, West Mount Ironworks, Halifax	.....	C. F. L. Horsfall & Son, Architects, Lord-st. Chambers, Halifax	do.
Granite and Materials	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich	do.
Grit	Norwich Corporation	A. E. Collins, City Engineer, Guildhall, Norwich	Feb. 1
*Power House, &c., Technical Inst., Paddington	L.C.C.	Arch. Dept. (General Construction Section), 15, Pall Mall East, S.W.	do.
*Electric Wiring & Fittings, &c., at Norlington-rd. Schs.	Leyton Dis. C. Education Com.	William Jacques, A.R.I.B.A., 2, Fen-court, Fenchurch-street, E.C.	Feb. 2
*Underground Conven. Laying-out Gar. & Pav. Works	Acton District Council	Council's Surveyor, 57, High-st., Acton, W.	do.
*Erection of Public Baths	Chiswick U.D.C.	Council's Surveyor, Town Hall, Chiswick	Feb. 3
*Erection of Stabling and Disinfecting Station	Boro' of Bethnal Green	Town Clerk, Town Hall, Church-row, Bethnal Green	Feb. 4
Engine Room Works, Workhouse Infirmary	Kingston-on-Thames Guardians	W. H. Hope, C.E., Seymour-road, Hampton Wick	Feb. 8
*New Ward, Laundry, and Additions to Hospital	Dartford J. Hospital Com.	R. Marchant, Architect, 28, Theobald's-road, W.C.	do.
Alter., &c., Rehoboth Welsh C.M. Chapel, Holywell	.....	T. G. Williams, Architect, 52, South Castle-street, Liverpool	Feb. 9
Sewage Works, Roffey and Little Haven	Horsham U.D.C.	S. Mitchell, Clerk, Market-square, Horsham	Feb. 10
*Supply of Broken Granite	Essex County Council	Chief Surveyor, Chelmsford	Feb. 15
*New Asylum, Marborough	Leicestershire, &c. Lunatic Asy.	Everard & Pick, Architects, Millstone-lane, Leicester	Feb.
*Erection of Epileptic Homes, &c.	Chorlton & Manchester Asyl. Com.	Giles, Gough, & Trollope, 28, Craven-street, Charing Cross, W.C.	Mar. 4
*Alterations, &c., Union Workhouse	Shardlow Guardians	Naylor & Sale, Architects, Irongate, Derby	No da
Outside Iron Staircases	.....	Medical Superintendent, N. Riding Asylum, Clifton, York	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
Clerk of Works	Hearts of Oak Benefit Society	Not stated	Jan. 16
General Out-door Foreman	City of Gloucester	2l. 2s. per week	Jan. 21
Architect's Assistant	Staffordshire C.C. Education Com.	130l.	Jan. 25
Architect	Staffs. County Council	150l. per annum	do.
Director of Public Works	Orange River Colony	900l., &c.	do.
Architectural Assistant	Barrow-in-Furness Corporation	120l.	Jan. 27

These marked with an asterisk (*) are advertised in this Number. *Competitions*, iv. *Contracts*, iv. vi. viii. x. *Public Appointments*, xix.

WOOD—*(continued)*—
PREPARED FLOORING—*(continued)*—

	Per square. £ s. d.	£ s. d.
1¼ in. by 7 in. white, planed and matched	0 14 6	0 16 6
¼ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	0 13 6
¼ in. by 7 in. do. do. do.	0 14 0	0 18 0
¼ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 11 6	0 13 6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0 ..	7 5 0
Compound Girders, ordinary sections	8 2 6 ..	9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6 ..	8 17 6
Flitch Plates	8 5 0 ..	8 15 0
Cast Iron Columns and Stanchions including ordinary patterns	7 2 6 ..	8 5 6

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON—		
Common Bars	7 10 0 ..	8 0 0
Staffordshire Crown Bars, good merchant quality	8 0 0 ..	8 10 0
Staffordshire "Marked Bars"	10 10 0 ..	—
Mild Steel Bars	8 15 0 ..	9 5 0
Hoop Iron, basis price	9 5 0 ..	9 10 0
" galvanised	17 10 0 ..	—
(*And upwards, according to size and gauge.)		
Sheet Iron (Black)—		
Ordinary sizes to 20 g.	9 15 0 ..	—
" " 24 g.	10 15 0 ..	—
" " 26 g.	12 5 0 ..	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0 ..	—
Ordinary sizes to 22 g. and 24 g	13 5 0 ..	—
" 26 g.	14 5 0 ..	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	16 0 0 ..	—
" " 22 g. and 24 g.	16 10 0 ..	—
" " 26 g.	18 0 0 ..	—
Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g	12 15 0 ..	—
" " 22 g. and 24 g.	13 5 0 ..	—
" " 26 g.	14 0 0 ..	—
Best Soft Steel Sheets, 6ft. by 2ft. to 3 ft. by 20 g. and thicker	11 15 0 ..	—
Best Soft Steel Sheets, 22 g. & 24 g	12 15 0 ..	—
" " " 26 g	14 0 0 ..	—
Cut nails, 3 in. to 6 in.	9 5 0 ..	9 15 0
(Under 3 in., usual trade extras.)		

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3lb. and up	14 0 0 ..	—
Pipe in coils	14 10 0 ..	—
Soil pipe	17 0 0 ..	—
Compo pipe	17 0 0 ..	—
ZINC—Sheet—		
Vieille Montagne ton	26 5 0 ..	—
Silesian	26 0 0 ..	—
COPPER—		
Strong Sheet per lb.	0 0 10½ ..	—
Thin "	0 0 11½ ..	—
Copper nails "	0 0 11 ..	—
BRASS—		
Strong Sheet per lb.	0 0 10 ..	—
Thin "	0 0 11 ..	—
TIN—English Ingots "	0 1 4 ..	—
SOLDER—Plumbers' "	0 0 6½ ..	—
Tinmen's "	0 0 8 ..	—
Plowpipe "	0 0 9 ..	—

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2d. per ft. delivered,
" fourths	1½d. " "
21 oz. thirds	3d. " "
" fourths	2½d. " "
26 oz. thirds	3½d. " "
" fourths	3d. " "
32 oz. thirds	4½d. " "
" fourths	4d. " "
Fluted sheet, 15 oz.	2½d. " "
" 21 oz.	3½d. " "
½ Hartley's Rolled Plate	1½d. " "
⅜ " " "	2d. " "
½ " " "	2½d. " "

OILS, &c.

	£ s. d.
Raw Linseed Oil in pipes or barrels per gallon	0 1 8
Boiled " " in drums	0 1 11
" " in pipes or barrels	0 1 11
" " in drums	0 2 2
Turpentine, in barrels	0 3 8
" in drums	0 3 10
Genuine Ground English White Lead per ton	19 0 0
Red Lead, Dry "	19 0 0
Best Linseed Oil Putty per cwt.	0 7 6
Stockholm Tar per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	1 1 0
White Copal Enamel	0 18 0
Extra Pale Paper	1 4 0
Best Japan Gold Size	0 12 0
Best Black Japan	0 10 6
Oak and Mahogany Stain	0 16 0
Brunswick Black	0 9 0
Berlin Black	0 8 6
Knotting	0 16 0
French and Brush Polish	0 10 0

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BESTWOOD (Notts).—For the erection of buildings, Forge Mills, Bestwood. Messrs. Sands & Walker, architects, Angel-row, Nottingham :—

W. Pipkin	£856 10 3	W. Brown	£544 0 0
T. Barlow	633 0 0	T. Cuthbert	530 0 0
T. Fish & Sons	625 0 0	T. H. Harper	526 0 0
J. Hutchinson & Sons	573 0 0	G. Baron	525 4 5
F. Messom	566 0 0	W. Maule	525 0 0
J. White & Sons	565 6 0	J. Smith	490 0 0
A. B. Clarke	555 0 0	W. J. Hutchinson	474 18 0
Thompson & Sons	550 0 0	T. Long, Nottingham*	464 0 0

BO'NESS.—For electric light, town hall and library, for Bo'ness Town Council. Mr. J. A. Liddle, electrical engineer, 28, Rutland-street, Edinburgh. Quantities by engineer :—

Jas. Milne & Son, Ltd.	£454 10 0
Robertson & Hogg	392 8 10
National Electric Construction Co., Ltd.	365 13 9
MacLeish, Morrison, & Co., Ltd.	341 2 8
Jas. M. Inglis	337 0 0
Malcolm & Allan	333 7 8
Frew, Watson, & Co., Ltd.	314 0 0
Sinclair, Bo'ness*‡	321 0 0

‡Less 2 per cent.

[These are the total amounts of scheduled rates. There will be a further sum of about £200 for fittings, etc., not included in present schedule.]

BRADFORD.—For additions to central offices, Manor-road, for the Guardians. Messrs. Empsall & Clarkson, architects, 7, Exchange, Bradford :—

Mason and Bricklayer : S. Wray & Co., Coppy Estate, Bradford.*
Steelwork : H. Barrett & Sons, Thornton-road, Bradford.*
Carpenter and Joiner : J. Briggs, Queensbury, Bradford.*
Plumber and Glazier : J. H. Clapham, Bowling Old-lane, Bradford.*
Plasterer and Concreter : A. Taylor, Eccleshill, Bradford.*
Slater : J. Smithies, Horton, Bradford.*
[Total, £6,985.]

BRECON (Wales).—For paving in cement concrete the cattle pens, and construction of new sheep pens, &c., also the construction of a new sewer at Dorlangoch, Brecon, for the Corporation. Mr. H. Ll. Griffiths, Borough Surveyor, Castle-street. Quantities by Borough Surveyor, Brecon :—

Markets Work.

E. C. & J. Keay	£1,287 0 0	W. P. Lewis & Co.	£1,069 0 0
P. Rigby	1,195 0 0	R. L. Williams, Brecon*	999 0 0
J. H. Macdonald	1,143 14 0	Robert Macnab	975 0 0
John Elwell	1,073 0 0		

[Borough Surveyor's estimate, £1,191.]

Sewer.

J. H. Macdonald	£225 0 0	W. P. Lewis & Co.	£172 0 0
Robert Macnab	197 0 0	R. L. Williams, Brecon*	146 16 0
Morgan Bros.	183 10 0		

[Borough Surveyor's estimate, £162.]

COALVILLE (Leicestershire).—For the erection of slaughter house, stables, &c., Ravenstone-road, for the Co-operative Society. Messrs. Goddard & Wain, architects, Station-chambers, High-street, Coalville. Quantities by architects :—

I. A. Wilemann	£1,840 0 0	Griffin Bros.	£1,660 10 0
W. Crane	1,740 0 0	E. Orton	1,616 0 0
B. Baxter	1,675 0 0	W. Moss, Coalville*	1,610 0 0

[Architects' estimate, £1,646 5s. 0d.]

COLWYN BAY.—For the erection of a free library in Woodland-road. Mr. J. M. Porter, architect and surveyor :—

G. Roberts & Bro.	£3,699 0 0	Mark Lane	£3,200 0 0
J. W. Weeks & Son	3,516 0 0	Roberts Bros.	3,196 0 0
S. Bond	3,494 0 0	R. Evans & Sons, Colwyn†	3,105 3 6
Davies & Jones	3,455 15 6	Grundy, Sons & Co.	3,100 0 0
J. Berth Jones	3,310 0 0	R. Evans, Jun.	2,950 0 0

DEAL.—For rebuilding the Five Ringers Inn, &c., for Messrs. Thompson & Son, Ltd., Walmer Brewery. Messrs. W. J. Jennings & J. F. Duthoit, architects, Dover. Quantities by the architects :—

W. J. Adcock	£1,609 8 9	T. T. Denne	£1,387 0 0
E. T. Turner	1,520 0 0	E. Trevers	1,305 0 0
J. E. Hayward	1,515 0 0	G. B. Cotten	1,264 0 0
G. F. Keeler	1,410 0 0	J. E. Turner, Walmer*	1,257 11 0
J. W. Sandcraft	1,400 0 0		

DROYLSDEN.—For street works, Buxton-lane, for the Droylsden Urban District Council. Mr. C. Hall, Surveyor, 10, Ashton-road, Droylsden. Quantities by Surveyor :—

Lawton & Hayes	£563 13 8	H. Fielding, Droylsden*	£492 0 0
F. Mitchell & Sons	495 0 0		

[Surveyor's estimate, £472.]

GARTLOCH.—For additions to nurses' home and alterations to present asylum buildings for Glasgow District Lunacy Board. Mr. Robert Tannock, Chief Master of Works, Parish Council Chambers, 266, George-street, Glasgow. Quantities by Messrs. Robert Scott & Son, 115, Wellington-street, Glasgow :—

Mason, &c., Work : Messrs. Patterson & Baldie, 53, Waterloo-st., Glasgow	£2,350 16 7
Carpenter, &c., Work : Messrs. James Herbertson & Sons, 85, Bedford-street, Glasgow	1,234 0 0
Plumber Work : R. Munro & Sons, 470, Springburn-road, Glasgow	415 0 0
Slater Work : A. Robertson, 31, Argyle-street, Glasgow	173 18 11
Plaster Work : D. & J. McKenzie, 75, Holland-street, Glasgow	265 10 0
Tile Work : Alec. Wilson & Co., 229, St. Vincent-street, Glasgow	216 15 8

GARTLOCH—*Continued.*

Heating Apparatus : R. Munro & Sons, 470, Springburn-road, Glasgow	£131 0 0
Painter Work : James Moodie, 246, Sauchiehall-street, Glasgow	82 6 7

HORWICH.—For 250 tons cast-iron pipes, for the Urban District Council. Mr. M. W. Tong, C.E., Engineer :—

	3-in.	12-in.	Specials.
Stanton Ironworks Co., Ltd., nr. Nottingham	£5 10 0	£5 1 6	£10 0 0

HUNSTANTON.—For making up carriage and footways, kerbing, and channelling, &c., Beech Terrace-road, for the Urban District Council. Mr. J. C. Walker, Surveyor, Council Offices, New Hunstanton :—

W. A. Leach	£425 0 0	Edward T. Edwards	£310 10 6
D. Nelson & Co.	327 10 0	F. Southgate, Hunstanton*	253 0 0
Reuham Shanks & Sons	327 0 0		

ILFORD.—For eight 400-gallon water vans for the Urban District Council. Mr. H. Shaw, Engineer to the Council, Town Hall, Ilford :—

W. Glover & Sons, Warwick	£396 0 0

ILFORD.—For road works (Hamilton, Harvey, Lockwood, Roman, and Toronto roads) for the Urban District Council. Mr. H. Shaw, A.M.Inst.C.E., Surveyor to the Council, Town Hall, Ilford :—

Parsons & Parsons, 2, High-road, Ilford	£1,129 14 9

LEATHERHEAD.—For making-up four private roads for the Urban District Council. Mr. T. Salkield, Surveyor, Council Offices, Leatherhead :—

Scan	£1,998 14 8	Lawrence & Thacker	£1,437 1 9
Catley	1,866 7 6	Kitteringham	1,330 6 1
May	1,768 16 2	Adamson*	1,240 3 8
Trueman	1,472 0 0		

[Surveyor's estimate, £1,874.]

For the Tar Paving Work.

Constable, Hart, & Co.	£287 11 4
J. Wainwright & Co.*	271 7 6

LICHFIELD.—For alterations to premises, 14, Market-street, Lichfield, for the International Tea Company's Stores, Ltd. Messrs. George Baines and R. Palmer Baines, architects, 5, Clement's-inn, Strand, London, W.C. :—

	Estimates A and B.	Estimate C.
W. H. Lascelles & Co.	£828 0 0	£88 0 0
W. H. Maxey & Son	805 0 0	42 0 0
Coulson & Lofts	655 16 0	27 10 0
T. Walmesley	592 6 0	49 0 0
Mawer Bros., of Louth*	575 0 0	30 0 0

LONDON.—For the erection of the superstructure of a new Police Court at Clerkenwell. Mr. J. Dixon Butler, Surveyor to the Metropolitan Police, Architect, New Scotland Yard. Quantities by Messrs. Thurgood, Son, & Chidgey, Charing Cross Chambers, Duke-street, Adelphi :—

Foster & Dickson	£29,435 0 0	Colls & Son	£26,754 0 0
Lascelles & Co.	28,945 0 0	Grover & Son	26,718 0 0
Holloway Bros	27,841 0 0	Holliday & Greenwood	26,563 0 0
Higgs & Hill	27,400 0 0	H. Lovatt	26,415 0 0
Lathey Bros.	27,190 0 0	Greenwood Ltd.	26,225 10 0
F. & H. F. Higgs	27,154 0 0	Ashby & Horner	26,165 0 0
F. G. Minter	26,992 0 0	Lawrance & Son	25,979 0 0
Mowlem & Co., Ltd.	26,884 0 0		

MORTLAKE.—For building new stabling, workshops, &c., and alterations and additions to fire station, High-street, for Barnes Urban District Council. Mr. G. Bruce Tomes, Surveyor, Council Offices, High-street, Mortlake. Quantities by Mr. A. O. Breeds, 62, Lincoln's Inn Fields, W.C. :—

Ford & Walton, Ltd.	£4,955 0 0
H. Blackburn	4,900 0 0
T. Pearce	4,612 17 8
P. Dockerill	4,698 0 0
Williams & Sons	4,570 0 0
A. Leather	4,461 15 11
Cropley Bros.	4,220 0 0
T. Bendon	4,217 0 0
Hughes & Co., Ltd.	4,196 0 0
F. W. Dunkley	4,151 17 0
W. J. Renshaw	4,143 0 0
Soole & Sons	4,100 0 0
Foster Bros.	4,056 0 0
Bailey & Fry	4,050 0 0
Hunt & Sons, 12, Archway-street, Barnes, S.W.*	3,922 0 0

MALDON.—For Tolleshunt Knights Water Supply Works, for the Rural District Council of Maldon. Mr. H. G. Keywood, C.E., Water Engineer, 6, Market-hill, Maldon, Essex :—

Contract No 1.—*Supply of Cast-Iron Pipes.*

	Per ton. 4-in.	3-in.
Sheepbridge Coal and Iron Co., Ltd.*	£5 8 6	£5 11 0
Staveley Coal and Iron Co., Ltd.	5 10 0	5 10 0
John Abbot & Co., Ltd.	5 10 0	5 12 6
Clay Cross Iron and Coal Co.	5 10 10	5 12 6
Cochrane & Co., Ltd.	5 11 3	5 15 0
J. & S. Roberts, Ltd.	5 12 6	5 12 6
Birtley Iron Co.	5 13 6	5 13 6
Orttewell & Son	5 14 11	5 14 11
Stanton Ironworks Co., Ltd.	5 15 0	5 17 6
Henry Whyte	5 17 6	6 0 0
Cochrane & Co.	5 17 6	6 2 6
Davies, Ball & Co.	6 0 0	6 6 0
A. G. Cloake (socket up)	5 0 0	5 3 6
R. Laidlaw & Sons (socket up)	5 4 0	5 7 6
Biggs, Wall & Co. (socket up)	5 4 9	5 8 3
J. & R. Ritchie, Ltd. (socket up)	5 5 0	5 7 6
T. Allen & Sons	5 5 0	5 8 6
British Mannesmann Tube Co., steel	1s. 6d. pr. ft.	9½d. pr. ft.

Contract No. 2.—*Supply of Windmill Pumping Plant.*

Canadian Imperial Windmill Syndicate*	£180 0 0	E. S. A. Smith.	£170 0 0
J. J. Furlong	136 2 0	E. H. Roberts, Ltd.	172 10 0
Maldon Ironworks Co., Ltd.	141 7 6	J. Wallis Titt	183 15 0
S. Owens & Co.	160 0 0	R. Warner & Co.	225 0 0
Thomas & Son	160 0 0	Orttewell & Son	228 10 0
E. S. A. Smith	159 0 0	Henry Sykes	230 0 0
"	162 0 0	Hunswick Bros.	240 0 0
"	167 0 0	Duke & Ockenden	298 10 0

MALDON.—(*Contd.*).
Contract No. 3.—Covered Concrete Reservoir.

C. T. Thorn, Tiptree, Kelvedon*	£405 15 9	J. Rayner	£452 3 0
A. Ward	419 13 0	Davies, Ball & Co.	488 2 0
		Ernest West	517 7 6

QUEENSBURY (Yorks).—For the erection of a cemetery chapel, and entrance gateway, for the Urban District Council. Messrs. T. H. & F. Healey, architects, Bradford. Quantities by architects :—

Mason : Jones & Wilcock, Queensbury	£933 0 0
Joiner : Joseph Bairstow & Son, Queensbury	210 0 0
Plumber : Wilson Stocks, Queensbury	64 9 0
Plasterer : Crabtree & Berry, Great Horton	25 10 0
Slater : Thomas Nelson & Son, Bradford	68 0 0
Painter : Tom Hewitt, Bradford	9 10 0

QUEENSBURY :—For earthenware pipe sewers, &c., and for boundary walls and entrance gateway at cemetery, for the Urban District Council. Messrs. John Drake & Son, surveyors, Queensbury :—

Jones & Wilcock, Queensbury £1,185 0 0

SOUTH-EASTERN AMBULANCE STATION.—For additional accommodation for small-pox nurses at the South-Eastern Ambulance Station, for the Metropolitan Asylums Board :—

C. B. Roberts & Co.	£2,525 10 0	W. Martin	£1,673 0 0
Kirk & Randall	2,314 0 0	T. Cole	1,621 0 0
E. Proctor & Son	2,119 0 0	Johnson & Co. Ld.	1,610 0 0
J. O. Richardson	2,021 0 0	T. G. Sharpington	1,598 0 0
R. H. Lowe	1,875 0 0	W. Lawrence & Son	1,594 0 0
H. Wall & Co.	1,721 0 0	W. Reason, 47, Rosebery-av., E.C.*	1,547 0 0
Ennes Bros.	1,693 0 0		

[Architects' estimate, £1,621.]

TOTTENHAM.—For the erection of a granary and stables, Broad-lane, Tottenham, N., for Mr. W. H. Clench. Mr. Augustine C. Green, architect, 111, Fore-street, Edmonton, and 40, Bruce Castle-road, Tottenham :—

W. Easun	£3,281 9 0	T. Almond & Son	£1,995 0 0
J. Stewart	2,481 0 0	Mattock Bros	1,997 0 0
F. Bull	2,168 0 0	J. Groves	1,904 0 0
Green & Smith	2,120 0 0	H. Knight & Son	1,867 0 0
A. Fairhead & Son	2,056 0 0	A. Porter*	1,847 0 0

TOTTENHAM.—For the erection of an iron van shed, Broad-lane, Tottenham, N., for Mr. W. H. Clench. Mr. Augustine C. Green, architect, 111, Fore-street, Edmonton, and 40, Bruce Castle-road, Tottenham :—

W. Harfrow	£186	St. Pancras Iron Works Co.*	£149
Humphreys	170		

TOTTENHAM.—For the erection of a block of flats, Bruce Castle-road, Tottenham, N., for Mr. J. B. Warcus. Mr. Augustine C. Green, architect, 111, Fore-street, Edmonton, and 40, Bruce Castle-road, Tottenham :—

H. Knight & Son	£820 0 0	W. J. Bysouth	£600 0 0
Hardy Bros.	817 0 0	W. Hawley*	587 10 0
J. Groves	785 0 0		

WANSTEAD.—For High-street paving, for Wanstead Urban District Council. Mr. C. H. Bressey, Surveyor :—

Adamant Stone Co.	£265 0 0	Imperial Stone Co.	£229 10 0
G. J. Anderson	211 0 0	W. H. L'celles & Co.	263 0 0
T. Adams	245 0 0	E. Lambie	212 0 0
F. Barry, 14, Whitta-road, Manor Park*	185 19 10½	W. Manders	223 0 0
Croft Granite Co.	234 15 6	Patent Indurated Co. (John Elles & Co.)	226 12 0
Empire Indurated	215 0 0	Parsons & Parsons	221 9 8
W. & C. French	240 0 0	G. Porter	228 16 0
B. W. Gleuny	211 15 0	W. Thomas	270 0 0
William Griffith	253 13 6	H. Williams	350 0 0
J. Jackson	212 0 0		

WATFORD.—For making up Watford-road, Northwood, for the Rural District Council. Mr. E. Tailey, surveyor, 9, Market-street, Watford :—

Henry Brown, Watford £450

WHITBY.—For fitting up the Temperance Hall with electric light, and for painting, &c., for Trustees of Temperance Hall :—

Electric Light.

I. Stephenson	£120 0 0	T. B. Watson & Son	£93 16 4
John O'Connor	114 5 2	G. P. Wells	79 10 0
Walker & Hutton	99 10 0	E. Cox Walker, Darlington*	70 0 0

Painting.

Dring	£110 0 0	F. Hemingway, Whitby*	£82 0 0
G. Trueman	97 12 6		
F. C. Agar	85 10 0		

WOKINGHAM.—For county police station and petty sessional court at Wokingham, Berks, for the Standing Joint Committee. Mr. Joseph Morris, County Surveyor, Reading. Quantities supplied :—

E. F. Lewis & Son	£6,572 0 0	W. J. May	£5,985 0 0
G. Higgs	6,550 0 0	B. E. Nightingale	5,980 0 0
F. R. Chinchen & Co.	6,350 0 0	J. Fergusson & Co.	5,963 0 0
Spear & King	6,345 0 0	F. Pizzey	5,907 0 0
Veale & Son	6,334 0 0	H. W. Godwin	5,795 0 0
H. Searle	6,325 0 0	McCarthy E. Fitt	5,787 0 0
C. Capel & Sons	6,315 0 0	Boxall & Sons	5,714 0 0
Stanley Ellis	6,278 0 0	J. B. Seward	5,708 0 0
G. H. Tucker	6,250 0 0	J. Dallow & Sons	5,598 0 0
Jenkins & Sons, Ltd.	6,245 0 0	J. H. Margetts & Sons	5,594 0 0
Peerless, Dennis, & Co.	6,230 0 0	W. Hawkins	5,586 0 0
East & Hyde	6,165 0 0	E. C. Hughes, Wokingham*	5,564 0 0
G. Pilgrim	6,104 0 0	G. Browne	5,551 0 0
G. S. Lewis & Bro.	6,100 0 0	C. W. Cox & Sons	5,505 0 0
G. Kemp	6,069 0 0	H. Charman	5,500 0 0
E. Chamberlain	6,040 0 0	W. Watson	5,496 0 0
W. Culver & Sons	5,992 0 0		

[County Surveyor's estimate, £5,654.]

WREXHAM.—For erecting a showroom, Salop-road, for Gaslight Co. Mr. M. J. Gummow, architect, Wrexham. Quantities by the architect :—

W. E. Samuels	£1,090 0 0	Davis Bros., Hill-street*	£1,036 0 0
Lewis Bros.	1,066 0 0		

B. NOWELL & Co.
Stone Merchants & Contractors.
Chief Office.—*Warwick Road, KENSINGTON.*
Norway, Guernsey, and Leicestershire Granite, Kerb, Pitching, and Yorkshire Stone.
ESTIMATES GIVEN FOR EVERY DESCRIPTION OF ROAD MAKING.

J. J. ETRIDGE, Jr.
SLATE MERCHANT,
SLATER and TILER.
Penrhyn-Bangor,
Oakeley-Portmadoc,
And every other description of Slates, except American, Ready for immediate delivery to any Railway Station.
RED SANDFACED NIBBED ROOFING TILES ALWAYS IN STOCK.
Applications for Prices, &c., to
BETHNAL GREEN SLATE WORKS,
BETHNAL GREEN, LONDON, E.

THE BATH STONE FIRMS, Ltd.
BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
The Ham Hill and Doulting Stone Co.
(incorporating the Ham Hill Stone Co. and C. Trask and Son, The Doulting Stone Co.)
Chief Office :—Norton, Stoke-under-Ham, Somerset.
London Agent :—Mr E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO., Ltd.,
LITHOGRAPHERS,
Employ a large and efficient Staff especially for Bills of Quantities, &c.
4 & 5, East Harding-st., Fetter-lane, E.C.

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch. [Telephone No. 434 Westminster.
METCHIM & SON { 8, PRINCES STREET, S.W. and 42, CLEMENT'S LANE, E.C.
"QUANTITY SURVEYORS' DIARY & TABLES," For 1904, price 6d., post 7d. In leather 1/-, post 1d.

JOINERY
Of every description and in any kind of Wood.
CHAS. E. ORFEUR, LTD.,
ESTIMATES ON APPLICATION.
COLNE BANK WORKS, COLCHESTER.
Telephone: 6195. Telegrams: "Orfeur, Colchester."

ASPHALTE
For Horizontal & Vertical Damp Courses.
For Flat Roofs, Basements, & other Floors.
Special attention is given to the above by
THE
French Asphalte Co.
Contractors to
H.M. Office of Works, The School Board for London, &c.
For estimates, quotations, and all information apply at the Offices of the Company,
5, LAURENCE POUNTNEY HILL,
CANNON STREET, E.C.

TWELVE GOLD AND SILVER MEDALS AWARDED.
IRON CISTERNS.
F. BRABY & CO.
VERY PROMPT SUPPLY.
LARGE STOCK READY.
Particulars on application.
CYLINDERS FOR HOT-WATER CIRCULATION.
LONDON : 352 to 364, EUSTON-ROAD, N.W., and 218 and 220, HIGH-STREET, BOROUGH, S.E.
LIVERPOOL: 6 and 8, HATTON GARDEN.
GLASGOW: 47 and 49, ST. ENOCH-SQUARE.
BRISTOL: ASHTON GATE WORKS, CORONATION-RD.